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# SECCHI DISC-CHLOROPHYLL A SELF-HELP PROGRAM

## 1987 SAMPLING RESULTS FOR LAKES IN THE CENTRAL REGION OF THE MINISTRY OF THE ENVIRONMENT

ISSN 0715-0261

1) ALLEN LAKE, DUDLEY & HARCOURT TWPS., HALIBURTON
2) ANSTRUTHER LAKE, ANSTRUTHER TWP., PETERBOROUGH
3) BALSAM LAKE, BEXLEY TWP., V[illegible]RIA COUNTY
4) BASS LAKE, ORILLIA & ORO TWPS., SIMCOE COUNTY
5) BAT LAKE, MINDEN TWP., HALIBURTON
6) BEECH LAKE, STANHOPE TWP., HALIBURTON
7) BELLA LAKE, SINCLAIR TWP., TWP. OF LAKE OF BAYS, MUSKOKA
8) BELMONT LAKE, BELMONT & METHUEN TWPS., PETERBOROUGH
9) BIG BARNHAM LAKE, DUDLEY TWP., HALIBURTGN
10) BIG HAWK LAKE, STANHOPE TWP., HALIBURTON
11) BIRCH BARK (TROUNCE) LAKE, GALWAY TWP., PETERBOROUGH
12) BLACK LAKE, WOOD WARD, TWP. OF MUSKOKA LAKES, MUSKOKA
13) BOSHKUNG LAKE, STANHOPE TWP., HALIBURTON
14) BRADY LAKE, ANSON & MINDEN TWPS., HALIBURTON
15) BRUCE LAKE, MEDORA WARD, TWP. OF MUSKOKA LAKES, MUSKOKA
16) BUCK LAKE, STISTED WARD, TOWN OF HUNTSVILLE, MUSKOKA
17) BUCKSKIN LAKE, MONMOUTH TWP., HALIBURTON
18) CANNING LAKE, MINDEN & SNOWDON TWPS., HALIBURTON
19) CATCHACOMA LAKE, CAVENDISH TWP., PETERBOROUGH
20) CHANDOS LAKE, CHANDOS TWP., PETERBOROUGH
21) CLEAR LAKE, LUTTERWORTH TWP., HALIBURTON
22) CLEARWATER LAKE, MORRISON WARD, TOWN OF GRAVENHURST, MUSKOKA
23) CLEMENT LAKE, MONMOUTH TWP., HALIBURTON
24) CREGO LAKE, SOMERVILLE TWP., VICTORIA
25) CRYSTAL LAKE, GALWAY TWP., PETERBOROUGH
26) DAVIS LAKE, LUTTERWORTH TWP., HALIBURTON
27) DENNA LAKE, LUTTERWORTH TWP., HALIBURTON
28) DEVILS LAKE, LUTTERWORTH TWP., HALIBURTON
29) DOESKIN (DOE) LAKE, MUSKOKA WARD, TOWN OF GRAVENHURST, MUSKOKA
30) DRAG LAKE, DUDLEY & DYSART TWPS., HALIBURTON
31) FARLAIN LAKE, TINY TWP., SIMCOE COUNTY
32) FOUR MILE LAKE, SOMERVILLE TWP., VICTORIA COUNTY
33) FOX LAKE, STISTED WARD, TOWN OF HUNTSVILLE, MUSKOKA
34) GEORGE'S LAKE, HARCOURT TWP., HALIBURTON
35) GO HOME LAKE, GIBSON WARD, TWP. OF GEORGIAN BAY, MUSKOKA
36) GULL LAKE, LUTTERWORTH TWP., HALIBURTON
37) GULL LAKE, MUSKOKA WARD, TOWN OF GRAVENHURST, MUSKOKA
38) HALIBURTON LAKE, HARBURN TWP., HALIBURTON
39) HALLS LAKE, STANHOPE TWP., HALIBURTON
40) HARP LAKE, CHAFFEY WARD, TOWN OF HUNTSVILLE, MUSKOKA
41) HEAD LAKE, LAXTON & DIGBY TWPS., VICTORIA COUNTY
42) HORSESHOE (ELSIE) LAKE, MINDEN TWP., HALIBURTON
43) JACK LAKE, BURLEIGH & METHUEN TWPS., PETERBOROUGH
44) KAHSHE LAKE, MORRISON WARD, TOWN OF GRAVENHURST, MUSKOKA
45) KASHAGAWIGAMOG LAKE, DYSART & MINDEN TWPS., HALIBURTON

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46) KAWAGAMA LAKE, SHERBORN, HAVELOCK, LIVINGSTON AND McCLINTOCK TWPS., HALIBURTON
47) KENISIS LAKE, HAVELOCK & GUILFORD TWPS., HALIBURTON
48) KOSHLONG LAKE, GLAMORGAN TWP., HALIBURTON
49) KUSHOG LAKE, STANHOPE TWP., HALIBURTON
50) LAKE MUSKOKA, TWP. OF MUSKOKA LAKES, MUSKOKA
51) LAKE OF BAYS, TOWNSHIP OF LAKE OF BAYS, MUSKOKA
52) LAKE ST. JOHN, RAMA TWP., SIMCOE COUNTY
53) LEECH LAKE, OAKLEY WARD, TOWN OF BRACEBRIDGE, MUSKOKA
54) LITTLE LAKE, WOOD WARD, TOWN OF GRAVENHURST, MUSKOKA
55) LITTLE LAKE, CRAMAHE TWP., NORTHUMBERLAND COUNTY
56) LITTLE HAWK LAKE, STANHOPE TWP., HALIBURTON
57) LITTLE KENNISIS, HAVELOCK TWP., HALIBURTON
58) LITTLE STRAGGLE, HARCOURT TWP., HALIBURTON
59) LONG LAKE, DUDLEY TWP., HALIBURTON
60) LONG LAKE, HARCOURT PARK, HALIBURTON
61) LOON LAKE, MONMOUTH TWP., HALIBURTON
62) LOONCALL LAKE, BURLEIGH TWP., PETERBOROUGH
63) MEDORA LAKE, MEDORA WARD, TWP. OF MUSKOKA LAKES, MUSKOKA
64) MENOMINEE LAKE, LAKE OF BAYS TWP., MUSKOKA
65) MINDEN LAKE, MINDEN TWP., HALIBURTON
66) MISKWABI LAKE, DUDLEY TWP., HALIBURTON
67) MOOT LAKE, McLEAN WARD, LAKE OF BAYS TWP., MUSKOKA
68) MOUNTAIN LAKE, MINDEN TWP., HALIBURTON
69) MULDREW LAKE, MUSKOKA, WOOD, AND MORRISON WARDS, TOWN OF GRAVENHURST, MUSKOKA
70) OAK LAKE, BELMONT & METHUEN TWPS., PETERBOROUGH
71) OTTER LAKE, SHERBOURNE TWP., HALIBURTON
72) PENINSULA LAKE, SINCLAIR & FRANKLIN WARDS, LAKE OF BAYS TWP., MUSKOKA
73) PERCY LAKE, HALIBURTON TWP., HALIBURTON
74) PINE LAKE, OAKLEY WARD, TOWN OF BRACEBRIDGE, MUSKOKA
75) REBECCA LAKE, SINCLAIR TWP., LAKE OF BAYS TWP., MUSKOKA
76) RIL LAKE, RIDEOUT WARD, LAKE OF BAYS TWP., MUSKOKA
77) SALERNO LAKE, SNOWDON & GLAMORGAN TWPS., HALIBURTON
78) SALMON LAKE, CAVENDISH TWP., PETERBOROUGH
79) SHADOW LAKE, SOMERVILLE TWP., VICTORIA COUNTY
80) SILVER LAKE, MUSKOKA & MORRISON WARDS, TOWN OF GRAVENHURST, MUSKOKA
81) SIX MILE LAKE, BAXTER WARD, TWP. OF GEORGIAN BAY, MUSKOKA
82) SKELETON LAKE, CARDWELL & WATT WARDS, TWP. OF MUSKOKA LAKES, MUSKOKA
83) SOYERS LAKE, MINDEN TWP., HALIBURTON
84) SPAR LAKE, LUTTERWORTH TWP., HALIBURTON
85) SPARROW LAKE, MORRISON WARD, TOWN OF GRAVENHURST, MUSKOKA
86) STURGEON LAKE, FENELON TWP., VICTORIA COUNTY
87) SUNNY LAKE, MORRISON WARD, TOWN OF GRAVENHURST, MUSKOKA
88) TASSO LAKE, FINLAYSON WARD, TWP.OF LAKE OF BAYS, MUSKOKA
89) THREE MILE LAKE, WATT WARD, TWP. OF MUSKOKA LAKES, MUSKOKA
90) TWELVE MILE LAKE, MINDEN TWP., HALIBURTON
91) WASEOSA LAKE, CHAFFEY WARD, TOWN OF HUNTSVILLE, MUSKOKA
92) WENONA LAKE, DUDLEY TWP., HALIBURTON
93) WOOD LAKE, OAKLEY WARD, TOWN OF BRACEBRIDGE, MUSKOKA

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# SECCHI DISC - CHLOROPHYLL A SELF-HELP PROGRAM - 1987

The "Self-Help Program" was initiated in 1971 in response to many requests from concerned cottagers for water quality surveys on many recreational lakes throughout the Province. In the Self- Help Program, cottagers perform the sample collection on their lakes and the Ministry analyzes and interprets the water quality information.

Volunteers in the Self-Help Program are supplied with sampling kits which include a Secchi disc, a water sampler, sample bottles and instructions. Participants are asked to take Secchi disc readings and collect water samples bi-weekly during the ice-free period of the year. The water samples are then shipped to the nearest Ministry of the Environment laboratory where they are analyzed for chlorophyll a. The true value of this program will only be realized if it is continued for a number of years in order to define long-term trends with regard to variations in the enrichment status of the lakes.

Enrichment of lakes occurs when fertilizing nutrients, such as nitrogen and phosphorus, enter the lake via rainfall, runoff from land, and shoreline development activities (i.e. subsurface disposal systems, land clearing, etc.). These nutrients promote the growth of aquatic plants and algae. It is important to realize that small to moderate amounts of aquatic plants and algae are necessary to provide food for fish. Too much growth, however, may interfere with water-oriented recreational activities.

Previous experience has indicated that there are three general categories of lake enrichment. All three categories exist in nature, however, man's activities can alter a lake's enrichment status. The transparency of the water as indicated by Secchi disc readings and the density of suspended microscopic aquatic plants, called algae, as indicated by chlorophyll a concentrations are measurements that are used to determine the enrichment status of a lake. The following table shows how these two measurements are interpreted to determine the enrichment status of a lake.

| Enrichment Status | Secchi Disc (S.D.) (Meters - M) | Chlorophyll a Concentration (Chl.a) (Micrograms/Litre - ug/L) |
|---|---|---|
| Enriched | 0 - 3 M | 4 ug/L or greater |
| Moderately Enriched | 3 - 5 M | 2 - 4 ug/L |
| Unenriched | 5 M or greater | 0 - 2 ug/L |

## Enriched Lakes

These lakes have high concentrations of nutrients and are characterized by excessive growths of algae and aquatic weeds. This may interfere with water-oriented recreational activities. As a result of the large amount of algae suspended in the water, Secchi disc readings are generally less than 3 meters and chlorophyll a concentrations are 4 ug/L or greater.

## Moderately Enriched Lakes

These lakes have moderate concentrations of nutrients and are characterized by moderate growth of algae and aquatic weeds. They are suitable for the pursuit of water oriented recreational activities, however, they may develop periodic problems such as algae blooms. Secchi disc readings range from 3 to 5 meters and chlorophyll a concentrations range from 2 to 4 ug/L.

## Unenriched Lakes

These lakes are the most desirable from a recreational standpoint. If these lakes are deep, they may support a cold water fishery such as lake trout. These are usually clear-water lakes, with low concentrations of nutrients. Secchi disc readings are 5 meters or greater and chlorophyll a concentrations are less than 2 ug/L.

ALLEN LAKE

DUDLEY & HARCOURT TWP.

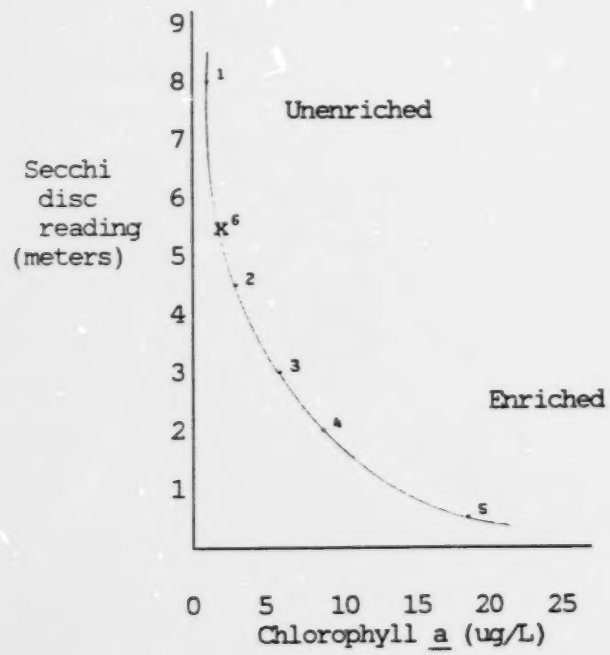
COUNTY OF HALIBURTON

Table 1: Secchi disc (m) and chlorophyll a (ug/L) data collected from Allen Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.a |
| May 18 | 6.25 | 1.1 |
| May 31 | 5.75 | 1.3 |
| Jun 7 | 5.50 | - |
| Jun 14 | 5.50 | 2.4 |
| Jun 21 | 4.50 | 3.2 |
| Jun 28 | 4.75 | 2.6 |
| Jul 5 | 4.00 | 2.8 |
| Jul 19 | 4.75 | - |
| Aug 3 | 5.50 | 2.0 |
| Aug 9 | 6.00 | 5.5 |
| Aug 23 | 5.75 | 1.7 |
| Aug 30 | 6.50 | 1.1 |
| | ---- | ---- |
| | 5.40 | 2.4 |

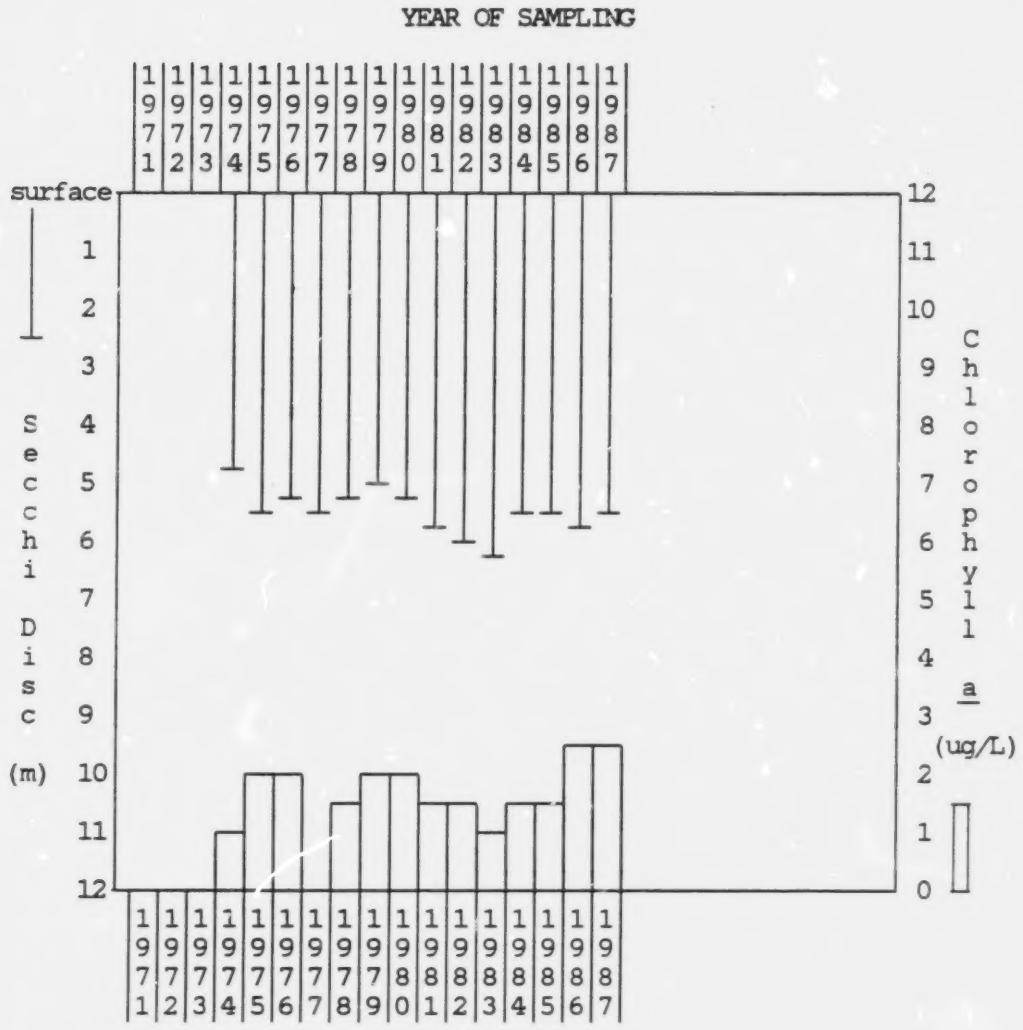
1987 saw another excellent sampling season on Allen Lake with 12 sampling occasions. The data from this year were consistant with previous years. The degree of water transparency was high again with Secchi disc readings ranging from 4.00 to 6.50. The chorophyll a concentrations were generally low ranging from 1.1 to 5.5 ug/L. The water quality of Allen Lake continues to be excellent.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Allen Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Allen Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Allen Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




There are now 13 years of reliable data for Allen Lake providing an excellent long term record of water quality. This record indicates that the water quality has not changed over the monitoring period and continues to be very good. Average Secchi disc readings have ranged from 5.2 to 6.2 m and average chlorophyll a concentrations have ranged from 1.2 to 2.4 ug/L. These data indicate that Allen Lake can be considered to be relatively unenriched. We hope that this outstanding level of participation in the Self-Help Program continues in the years to come.

ANSTRUTHER LAKE

ANSTRUTHER TOWNSHIP

PETERBOROUGH COUNTY

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Anstruther Lake in 1987.

| Station | North End | | South End | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jul 12 | 6.0 | 1.9 | 5.0 | 1.9 |
| Jul 19 | 5.5 | 2.5 | 5.5 | 2.3 |
| Jul 26 | 5.5 | 2.6 | 5.5 | 2.7 |
| Aug 3 | 5.0 | 2.0 | 6.0 | 2.6 |
| Aug 16 | 5.0 | 2.5 | 5.5 | 2.3 |
| Aug 21 | 5.0 | 3.0 | 6.0 | 2.4 |
| Sep 13 | 5.5 | 1.7 | 6.0 | 2.0 |
| | 5.4 | 2.3 | 5.6 | 2.3 |

Once again a good program was conducted on Anstruther Lake; samples were collected on 7 occasions in 1987. As in previous years Secchi disc readings indicated a high degree of water transparency and chlorophyll a concentrations were moderately low, ranging from 1.7 to 3.0 ug/L. Anstruther Lake remains relatively unenriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Anstruther Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

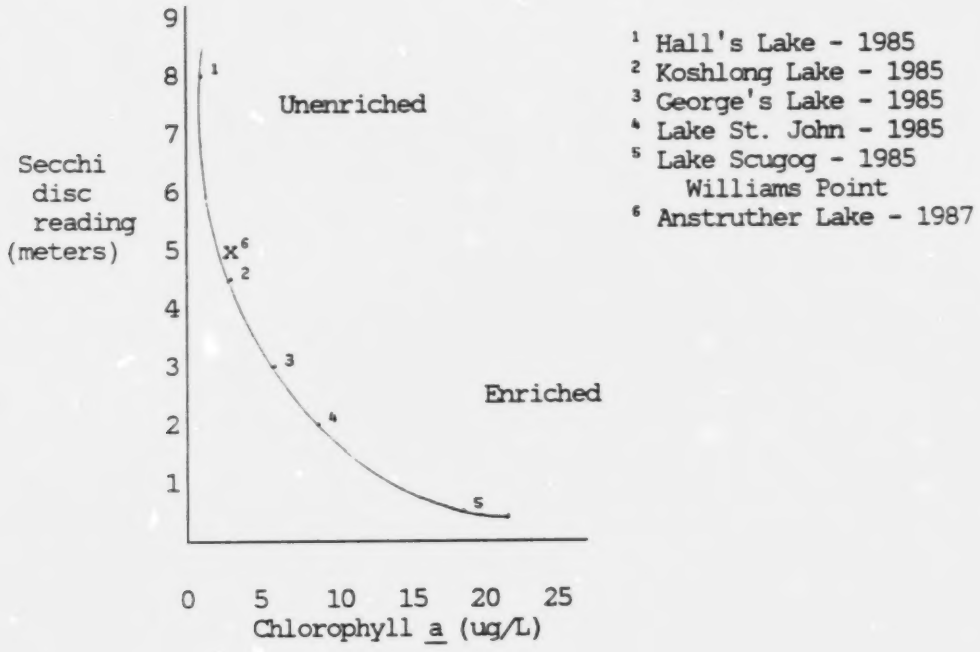


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Anstruther Lake (North End). Averages based on fewer than 4 points were considered unreliable and were not graphed.

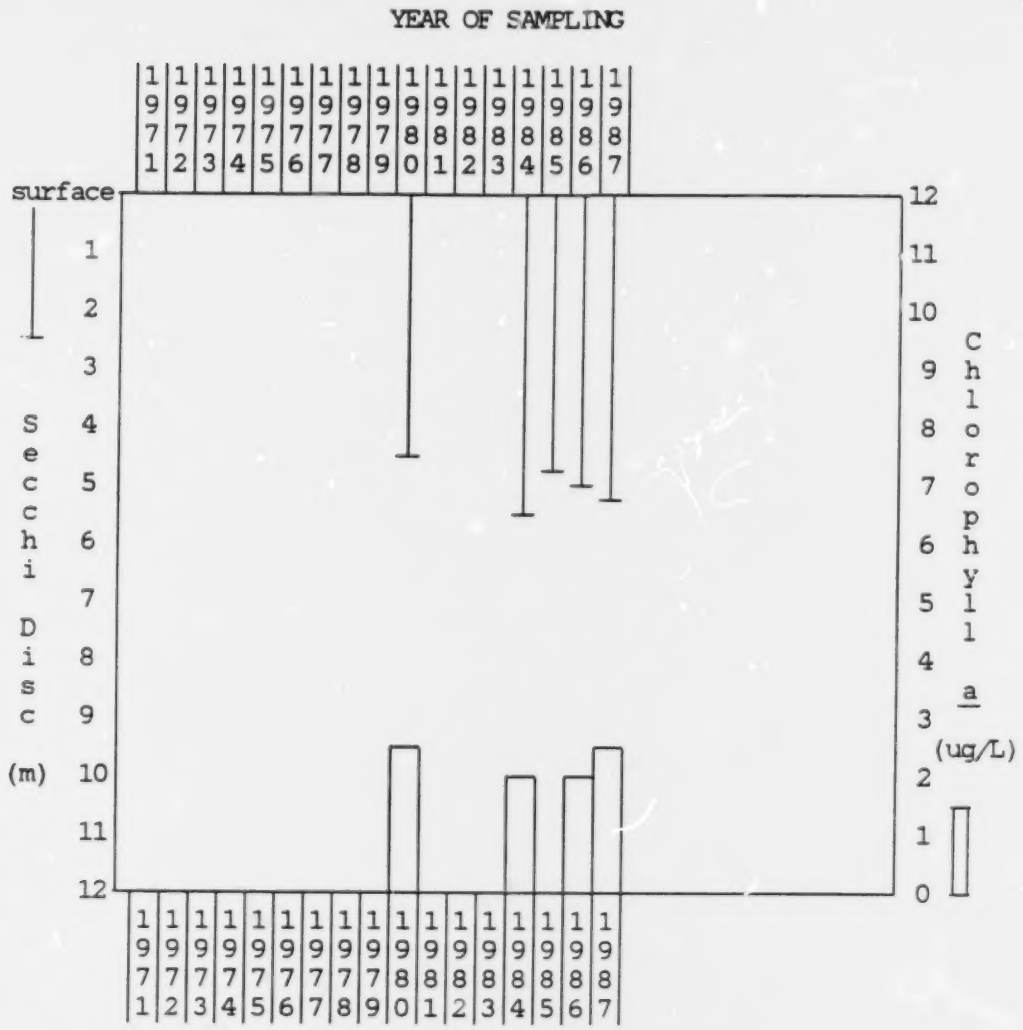
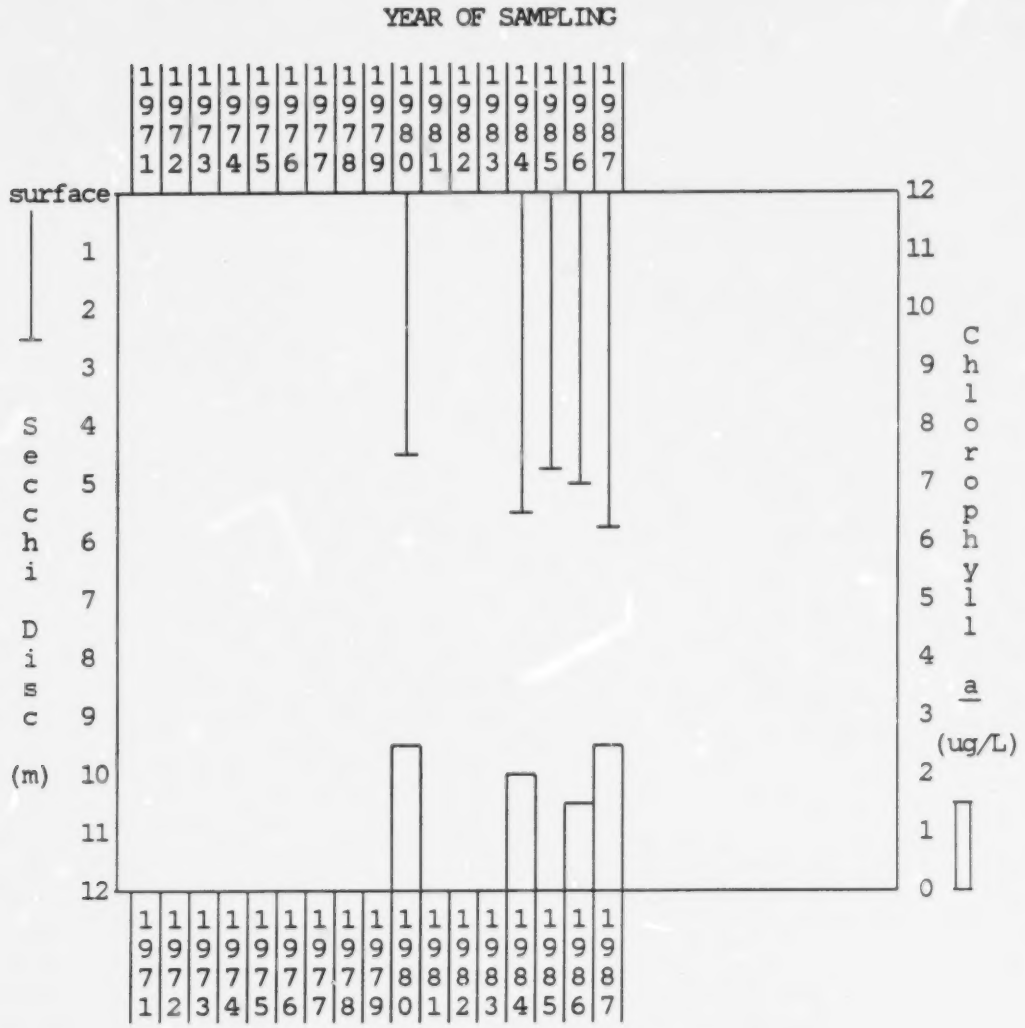


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Anstruther Lake (South End). Averages based on fewer than 4 points were considered unreliable and were not graphed.




The water quality of Anstruther Lake does not seem to have changed appreciably between 1980 and 1987. Both the North and South stations have exhibited moderate to high water clarity as indicated by Secchi depths and low to moderate densities of suspended algae as indicated by the chlorophyll a concentrations. Anstruther Lake continues to lie on the borderline between being unenriched and moderately enriched. We encourage continued sampling in future years to establish a long-term record of water quality for this lake.

BALSAM LAKE

BEXLEY TOWNSHIP

VICTORIA COUNTY

TABLE 1: Secchi disc (m) and chlorophyll a (ug/L) data collected from Balsam Lake in 1987.

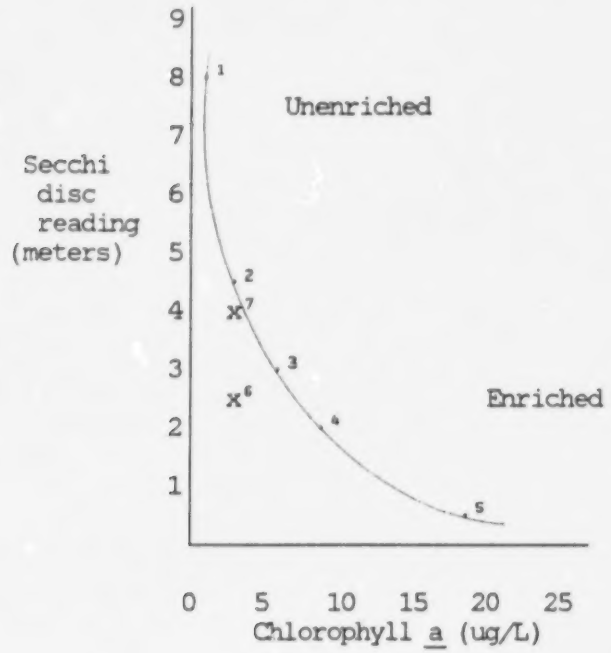
| Station | West Bay | | Station 8 Grand Island | |
|---|---|---|---|---|
| Date | S.D. | Chl. a | S.D. | Chl. a |
| Jun 7 | - | - | 4.0 | 3.2* |
| Jun 14 | - | - | 4.5 | 2.6* |
| Jun 21 | - | - | 4.0 | 1.7** |
| Jul 5 | 2.0 | 3.7** | 4.0 | 2.5* |
| Jul 12 | - | - | 4.3 | 2.1 |
| Jul 26 | 2.5 | 2.9 | - | 1.7 |
| Aug 16 | 1.8 | 3.7** | - | - |
| Aug 23 | 2.4 | 2.8** | - | - |
| Aug 29 | 2.6 | 3.7** | - | - |
| Sep 7 | 2.5 | 1.5 | 4.0 | 2.1** |
| | 2.3 | 3.1 | 4.1 | 2.3 |

* depth of sampling not specified.

** depth of sampling not 2x the Secchi depth.

(For text, see following page)

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Balsam Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point

Balsam Lake - 1987
[6] West Bay
[7] Grand Island

Based on the data collected in 1987 it would appear that Balsam Lake was in a moderately enriched nutrient condition. Water clarity was relatively low with Secchi depth readings averaging between 2.3 and 4.1 m. Densities of suspended algae were moderate based on average chlorophyll a concentrations of 2.3 to 3.1 ug/L. However, because of inconsistencies in sampling, it is emphasized that these conclusions are tentative. If possible, in future, chlorophyll a should be sampled through 2x the Secchi depth and the depth of sampling should be recorded on the submission forms.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Balsam Lake (Grand Island). Averages based on fewer than 4 points were considered unreliable and were not graphed.

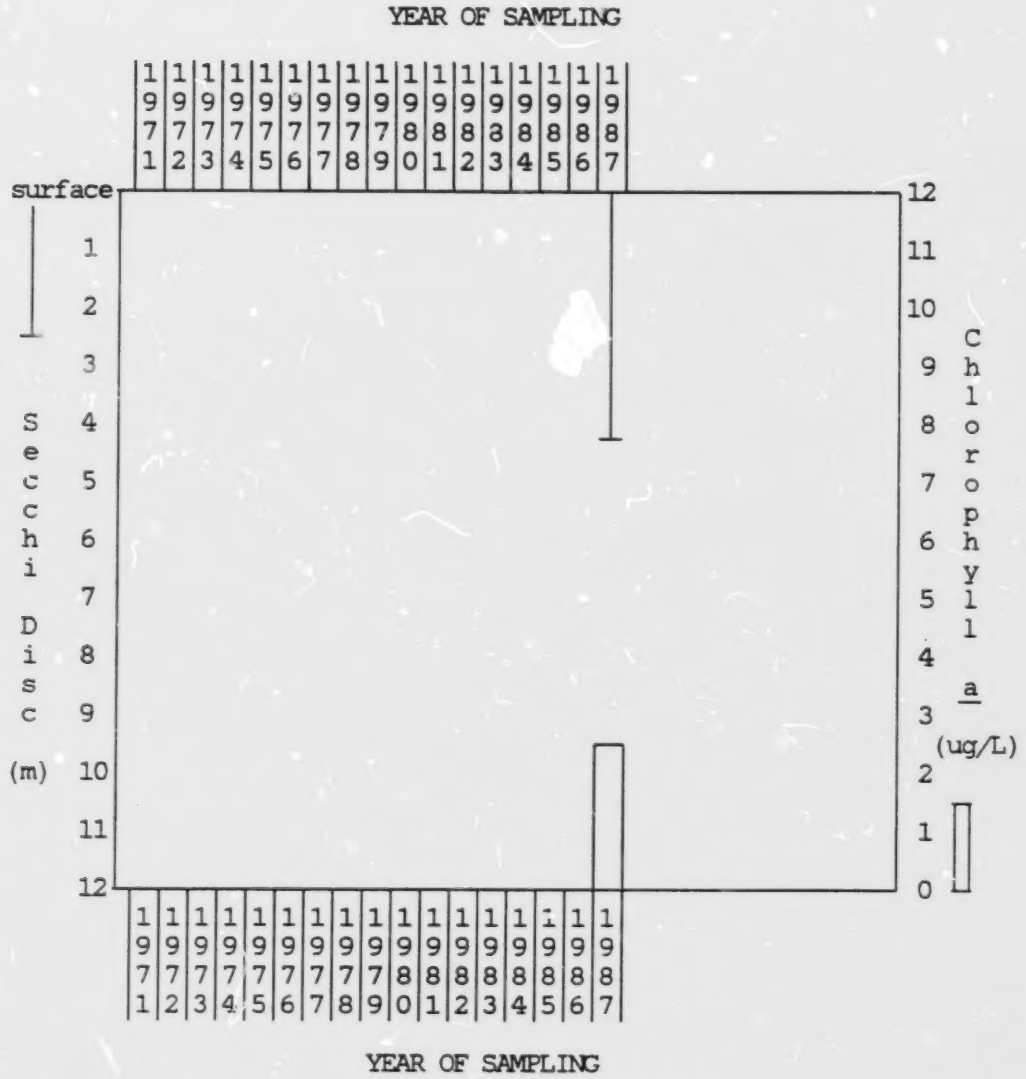
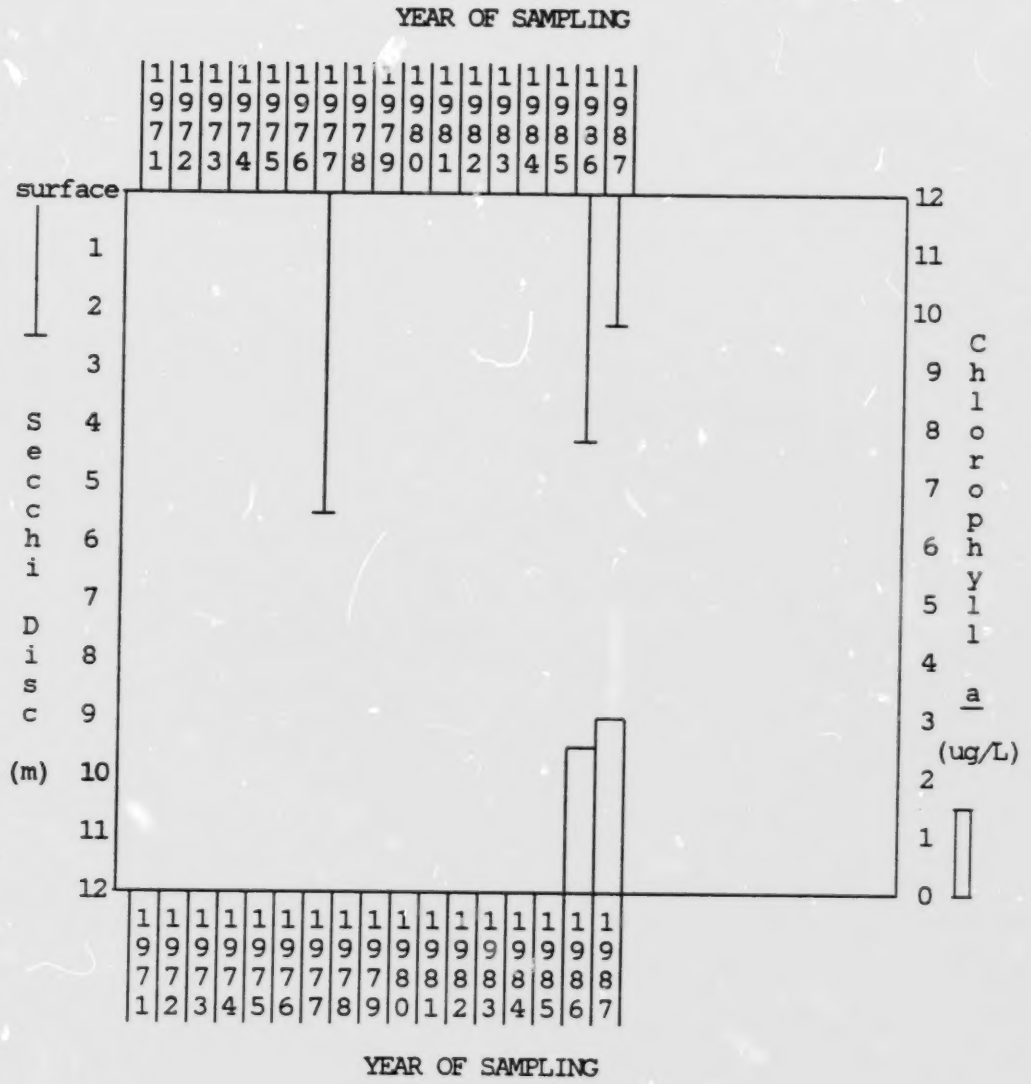


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Balsam Lake (West Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Sampling on Balsam Lake has not been conducted over enough years to make any useful observations on long-term trends in water quality. Although water clarity at the West bay station seemed low in comparison with 1986 and 1977, and chlorophyll a concentrations were slightly higher than in 1986, it is impossible to determine whether this is part of a pattern. The Grand Island station was sampled for the first time in 1987 preventing any comparison with previous years. On the basis of the data from the two stations, Balsam Lake is moderately enriched with nutrients. We encourage sampling in future years to estabish a long-term record of water quality for this lake.

BASS LAKE

ORILLIA & ORO TOWNSHIPS

SIMCOE COUNTY

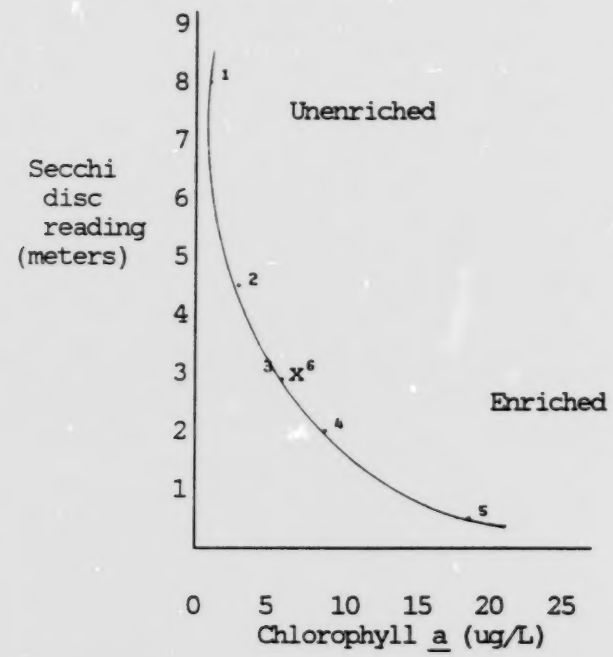
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Bass Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 13 | 3.0 | 15.7 |
| Jun 23 | 2.3 | 4.8 |
| Jul 7 | 2.3 | 6.7 |
| Jul 21 | 3.0 | 4.3 |
| Aug 4 | 2.5 | B.T. |
| Aug 24 | 2.5 | L.A. |
| Sep 8 | 2.3 | 4.8 |
| Sep 21 | 3.0 | B.T. |
| Oct 12 | 3.0 | 5.3 |
| | 2.7 | 6.9 |

B.T. : Sample Broken in Transit
L.A. : Laboratory Accident

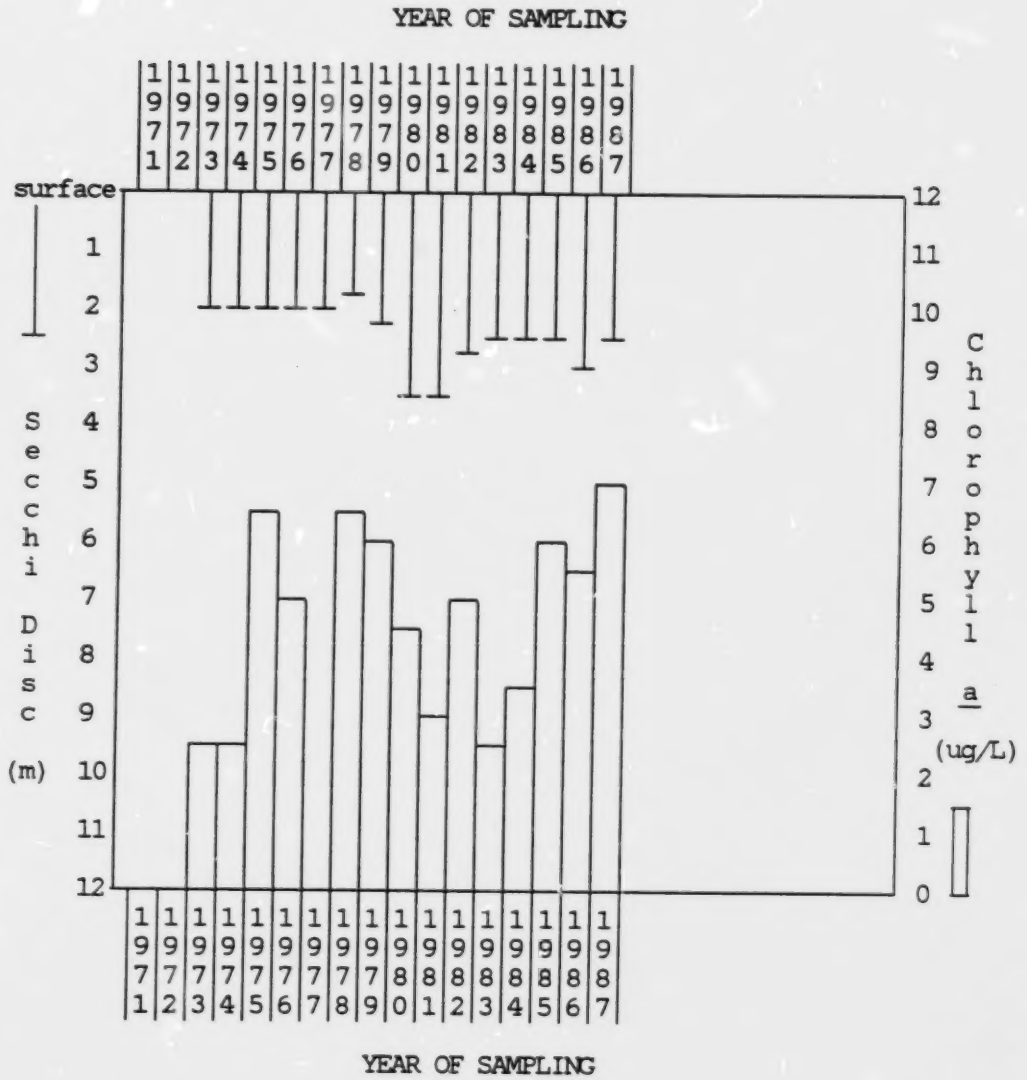
An excellent sampling program was performed again this year on Bass Lake with 9 sampling occasions. Bass Lake had a low to moderate degree of water transparency with Secchi disc readings ranging from 2.3 to 3.0 with an average of 2.7 m. The densities of suspended algae were high with chlorophyll a concentrations ranging from 4.3 to 15.7 ug/L. Again, the results confirm the enriched status of the lake resulting in occasional algal blooms.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Bass Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Bass Lake 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Bass Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Bass Lake has an excellent historical record of water quality with 15 years of reliable data. The degree of water clarity has been low over most of the period of record with average Secchi disc readings ranging from 1.8 to 3.6 m. The densities of suspended algae have been variable with seasonal means ranging from 2.3 to 6.9 ug/L. Bass Lake can be considered to be an enriched lake with no detectable indication of a change in water quality. We hope that sampling will continue in 1988 to maintain this excellent long term record of water quality.

BAT LAKE

MINDEN TOWNSHIP

COUNTY OF HALIBURTON

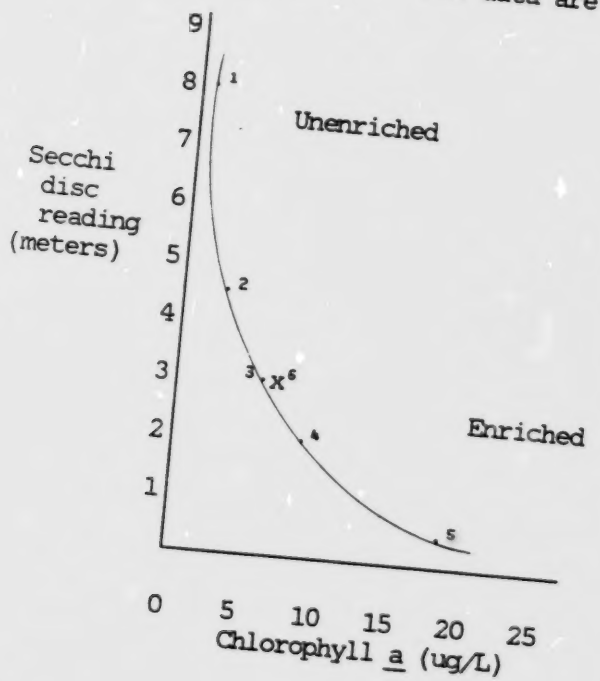
Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Bat Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.*a* |
| May 31 | 2.75 | 5.0 |
| Jun 6 | 3.0 | 5.4 |
| Jun 13 | 2.5 | 6.7 |
| Jun 21 | 2.75 | 6.5 |
| Jun 27 | 3.0 | 6.2 |
| Jul 5 | 2.5 | 5.2 |
| Jul 11 | 2.5 | 5.5 |
| Jul 18 | 2.75 | 7.0 |
| Jul 25-26 | 3.0* | 4.7* |
| Aug 8 | 2.5 | 5.1 |
| Aug 31 | 2.25 | 9.1 |
| Sep 4 | 2.5 | 8.4 |
| | 2.7 | 6.2 |

* Average of two samples.

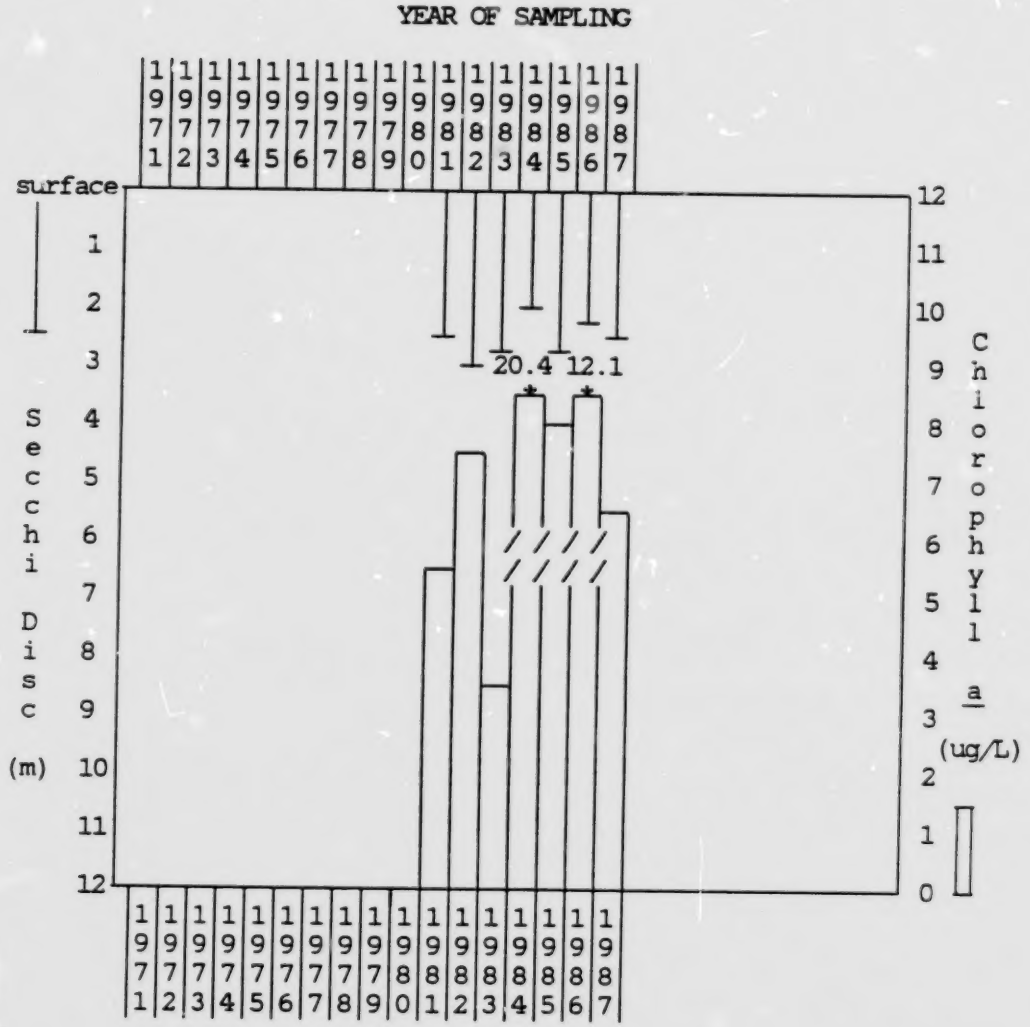
An excellent sampling program was performed on Bat Lake again this year with 12 sampling occasions. The degree of water clarity was low, with Secchi disc values ranging from 2.25 to 3.0 m. Densities of suspended algae were much lower this year than in the previous 3 years with chlorophyll *a* concentrations averaging 6.2 ug/L in 1987. The water quality data for 1987 reconfirm Bat Lake's enriched status.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Bat Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Bat Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Bat Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




* Chlorophyll a concentration higher than the scale of graph

There are now 7 years of reliable water quality data for Bat Lake. The seasonal mean densities of suspended algae have been high and variable over the period of record, ranging from 5.5 to 20.4 ug/L. The water clarity has been consistently low with Secchi disc readings ranging from 1.9 to 3.0 m. Bat Lake can be considered to be an enriched lake with a low degree of water clarity and a high and often variable concentration of suspended algae. We hope to see sampling continue on Bat Lake in order to establish a long-term water quality record.

**BEECH LAKE**

**STANHOPE TOWNSHIP**

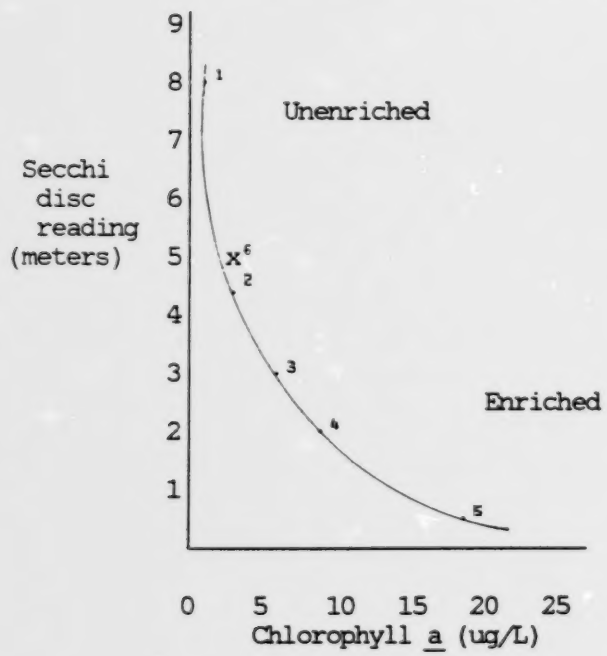
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Beech Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.a |
| Apr 19 | 5.2 | 1.6 |
| Jun 21 | 5.0 | 2.9 |
| Jun 28 | 4.0 | 2.8 |
| Jul 5 | 5.2 | 4.7 |
| Jul 12 | 5.0 | 4.5 |
| Aug 3 | 6.1 | 2.9 |
| Aug 10 | 4.5 | 2.2 |
| Aug 16 | 5.5 | 2.5 |
| Sep 6 | 6.5 | 1.5 |
| | 5.2 | 2.8 |

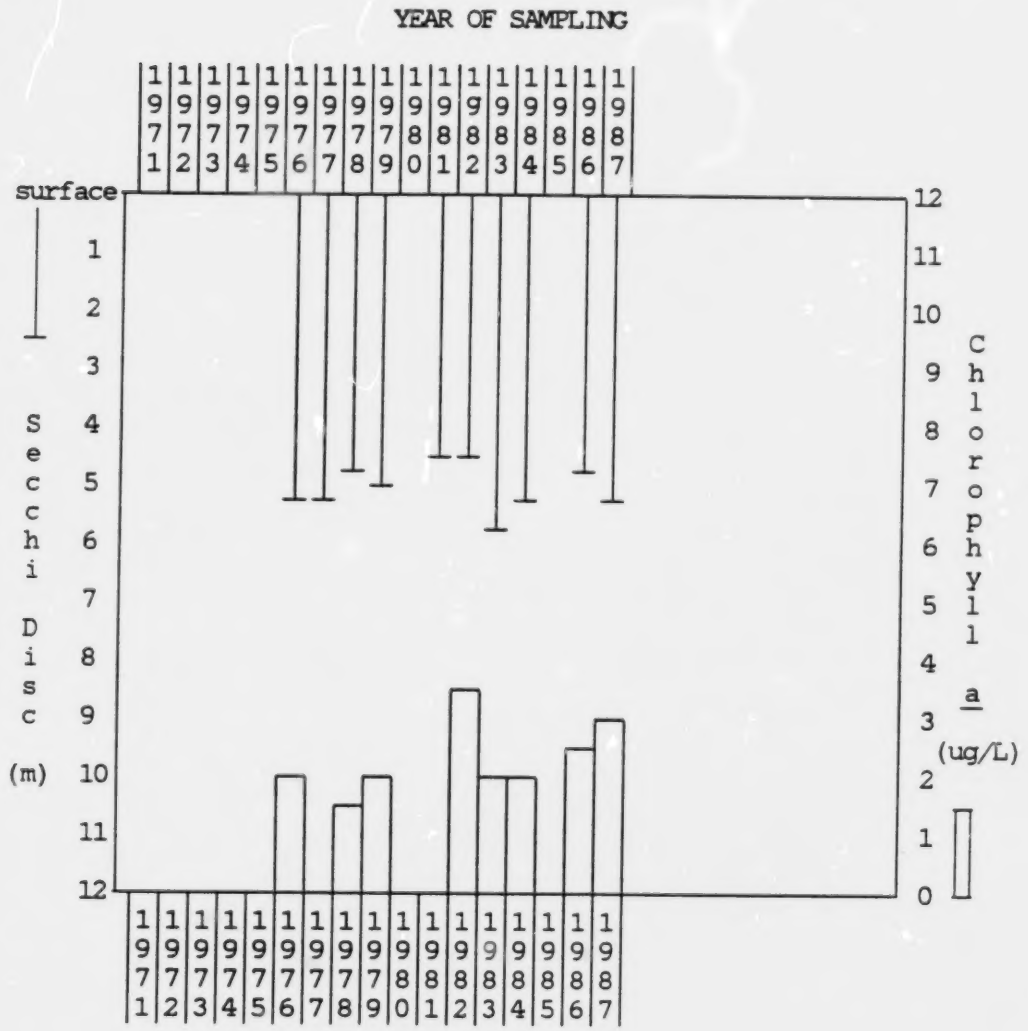
Another good sampling program was conducted on Beech Lake in 1987, with sampling on 9 occasions. The chlorophyll a concentrations were low to moderate ranging from 1.5 to 4.7 ug/L. There was a moderately high degree of water clarity with secchi disc readings averaging 5.2 m. The 1987 results suggest that Beech Lake is on the borderline between being unenriched and moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Beech Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Beech Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Beech Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




A good historical record of water quality has been established for Beech Lake with 10 years of Secchi disc and/or chlorophyll a data. There appears to have been no overall change in the water quality for this period of record. The degree of water clarity has been moderately high with seasonal mean Secchi disc readings ranging between 4 and 6 m. The densities of suspended algae have been low to moderate with chlorophyll a values ranging from 1.5 to 3.6 ug/l. The historical data indicate that Beech Lake is on the borderline between being unenriched and moderately enriched. We hope to see this excellent level of participation in the program continue in 1988.

BELLA LAKE

SINCLAIR TOWNSHIP
TOWNSHIP OF LAKE OF BAYS

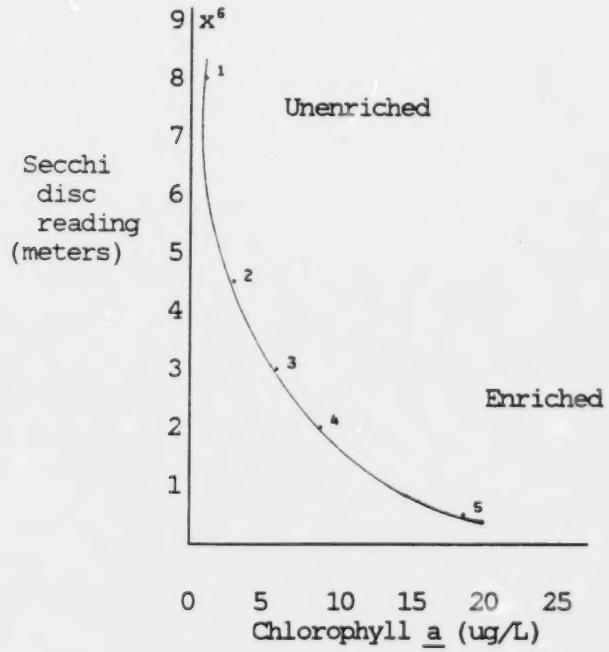
DISTRICT MUNICIPALITY OF
MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Bella Lake in 1987.

| Station | Centre | | West (Beach) | | East | |
|---|---|---|---|---|---|---|
| Date | S.D. | Chl. a | S.D. | Chl. a | S.D. | Chl. a |
| Jul 26 | 7.2 | 1.6 | 7.5 | 2.0 | - | - |
| Jul 30 | 9.0 | 1.1 | - | - | 8.5 | 1.2 |
| Aug 9 | 9.5 | 1.0 | - | - | 8.0 | 1.1 |
| Aug 21 | 9.5 | 3.1 | 9.5 | 1.3 | - | - |
| | 8.8 | 1.7 | - | - | - | - |

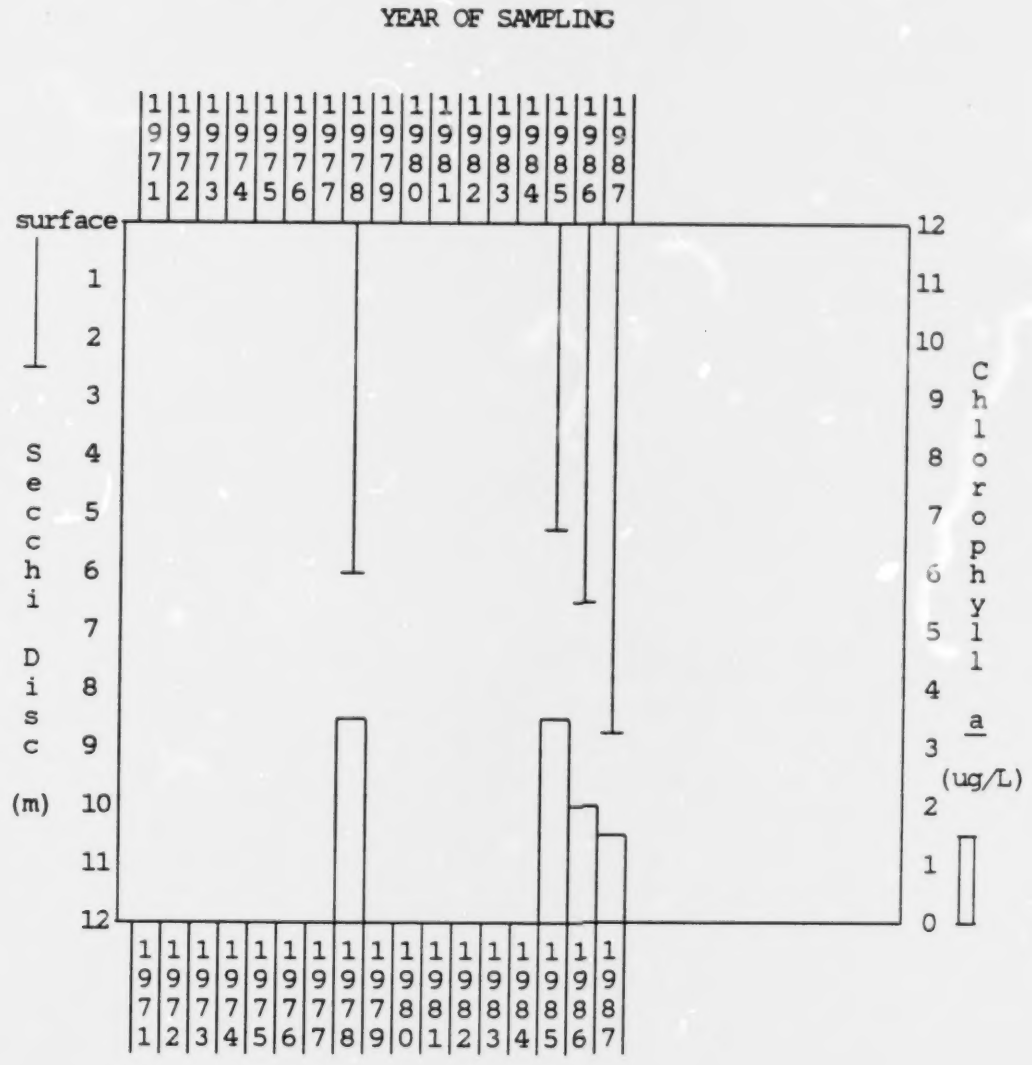
Not enough sampling was conducted on Bella Lake in 1987 to allow a reliable description of the summer water quality. It would appear, based on the Secchi depth readings and chlorophyll a concentrations at the Centre station, that the water was unenriched and of good quality. If possible, sampling should be conducted on at least six occasions at each station to provide reliable seasonal averages.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Bella Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
[6] Bella Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Bella Lake (Centre). Averages based on fewer than 4 points were considered unreliable and were not graphed.




In 1987 the water clarity of Bella Lake was high and chlorophyll a concentrations were low in comparison with other years. Because the 1987 data were based on only 4 sampling dates it is uncertain how accurately they reflect the actual summer water quality conditions. Based on the few data available in 1986 and 1987 it would appear that Bella Lake is experiencing an improvement in water quality, moving from moderately enriched to unenriched nutrient conditions. Sampling on at least six occasions over the summer in future years would provide valuable data on which to verify this observation.

**BELMONT LAKE**

**BELMONT & METHUEN TOWNSHIPS**

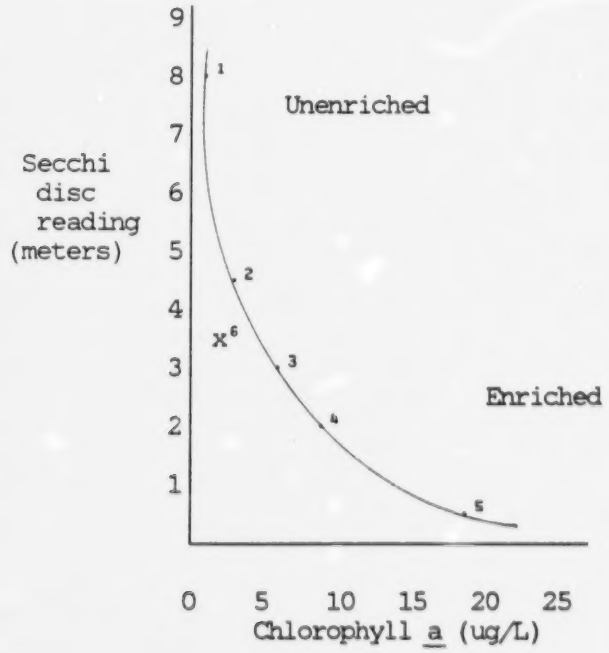
**PETERBOROUGH COUNTY**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Belmont Lake in 1987.

| Station | Near Entrance To Crowe River | |
|---|---|---|
| Date | S.D. | Chl.a |
| May 26 | 3.5 | 1.1 |
| Jun 1 | 3.75 | 1.9 |
| Jun 15 | 3.5 | 2.0 |
| Jun 23 | 3.75 | 2.7 |
| Jul 13 | 3.75 | 3.0 |
| Jul 28 | 4.5 | 2.0 |
| Aug 12 | 3.5 | 3.4 |
| Aug 17 | 3.75 | 1.8 |
| | 3.75 | 2.2 |

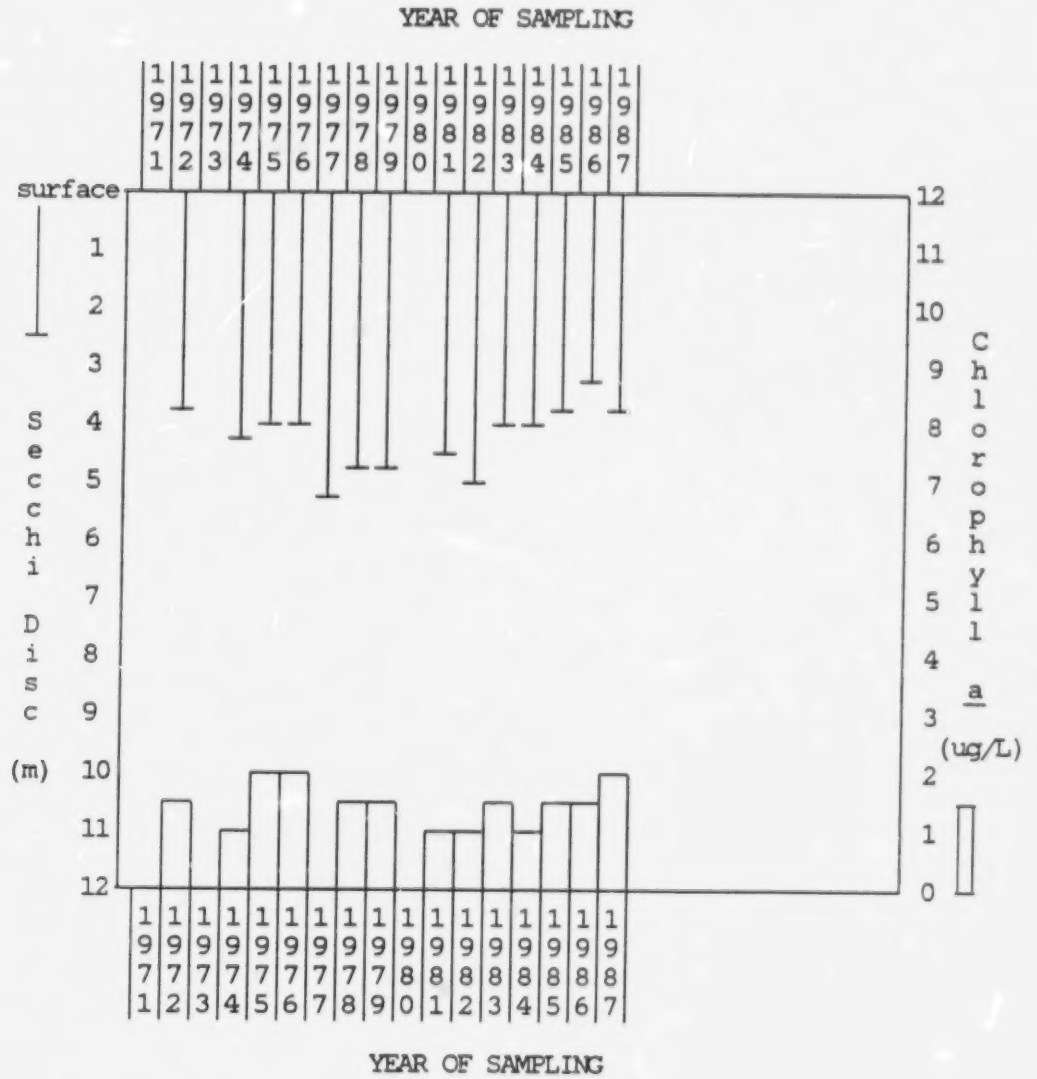
Another good sampling program was conducted on Belmont Lake in 1987 with 8 sampling occasions. Secchi disc readings averaged 3.75 m, indicating a moderate degree of water transparency. Chlorophyll a concentrations were low to moderate ranging from 1.1 to 3.4 and averaging 2.2 ug/L. The 1987 results indicate that Belmont Lake is on the borderline between unenriched and moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Belmont Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Belmont Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Belmont Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




There are now 14 years of Secchi disc and chlorophyll a data for Belmont Lake providing us with an excellent record of its water quality. There does not appear to be any significant change in water quality over the period of record. The degree of water clarity has been high to moderate and the densities of suspended algae have generally been low. The water quality record is indicative of a lake on the borderline between being unenriched and moderately enriched. We hope that sampling in 1988 will continue and that this excellent record will be maintained.

BIG BARNHAM LAKE

DUDLEY TOWNSHIP

COUNTY OF HALIBURTON

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Big Barnham Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.*a* |
| May 18 | 8.0 | 2.2* |
| Jun 7 | 6.0 | 1.6* |
| Jul 5 | 5.0 | 1.8 |
| Jul 19 | 6.0 | 2.6* |
| Aug 9 | 7.0 | B.T. |
| Aug 23 | 8.0 | L.A. |
| Sep 7 | 7.5 | 2.0 |
| | 6.9 | 2.0 |

A good sampling program was conducted on Big Barnham Lake in 1987, with sampling on 7 occasions. There was a high degree of water clarity with Secchi disc readings averaging 6.9 m. The suspended algae densities were low as indicated by chlorophyll *a* levels averaging 2.0 ug/L. Based on the 1987 results, Big Barnham Lake would be considered to be unenriched with good water quality.

B.T. : Sample broken in transit.
L.A. : Sample lost in lab accident.
* Not sampled over 2x the Secchi depth.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Big Barnham Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

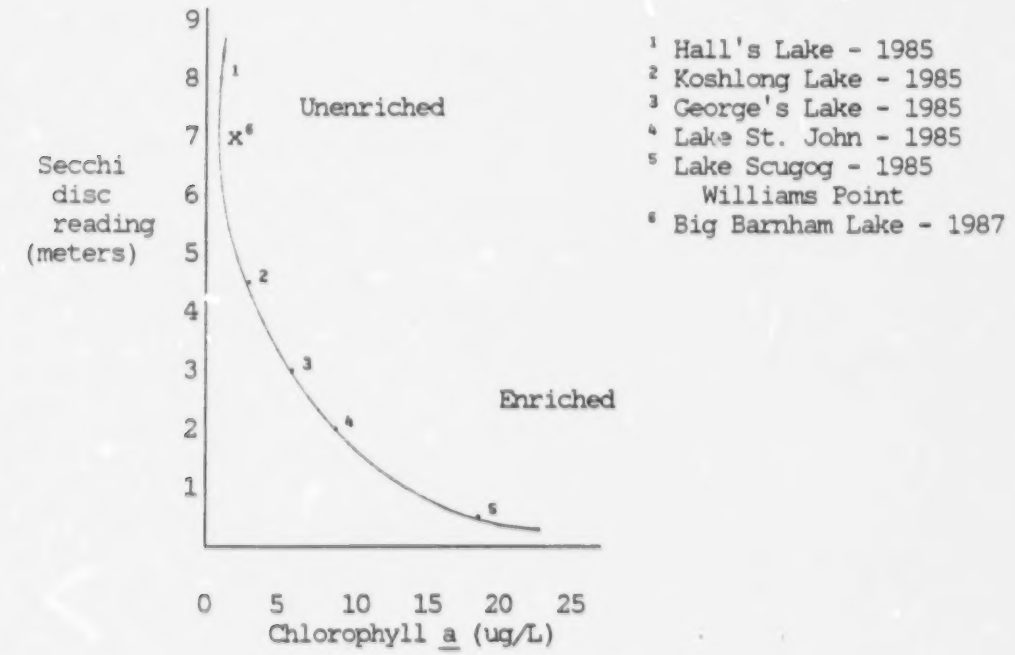
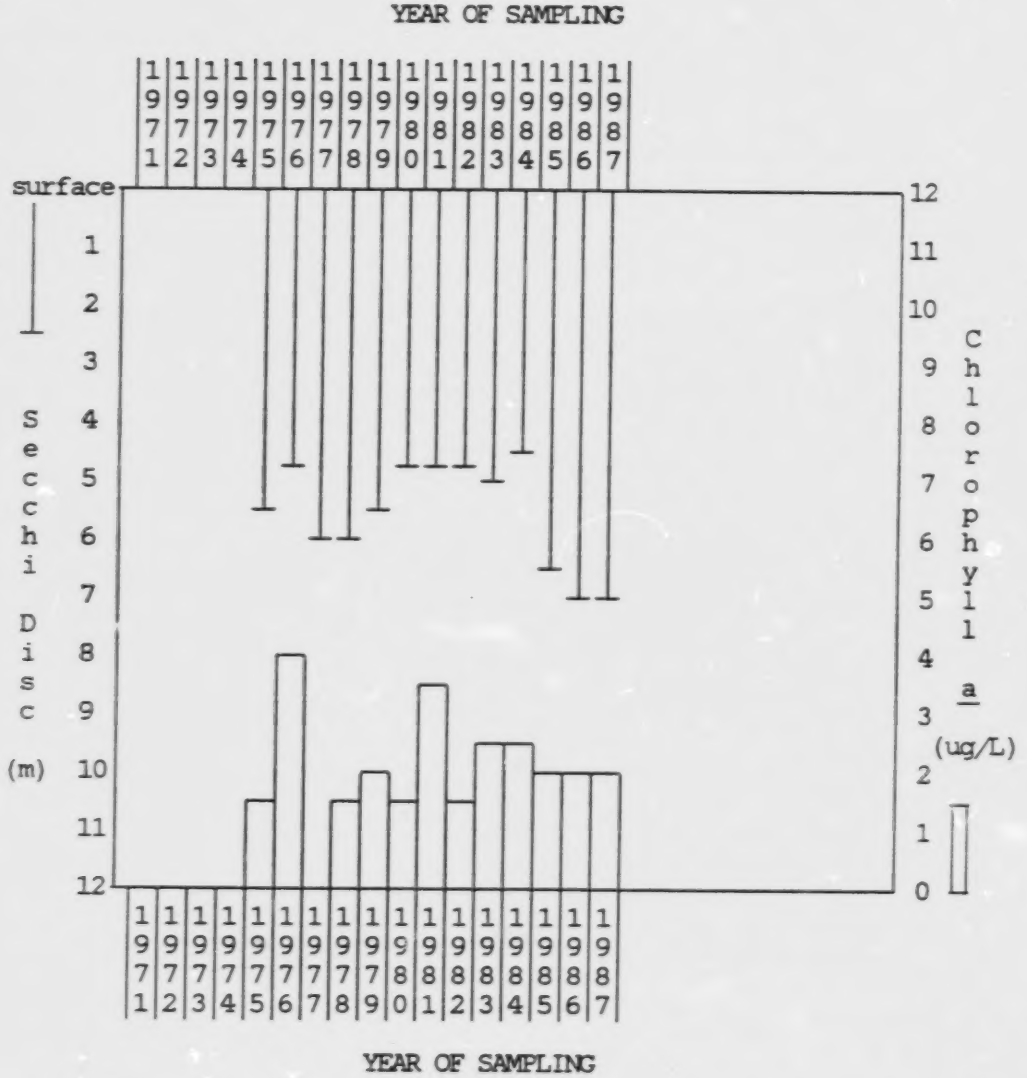


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Big Barnham Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




An excellent long-term record of water quality has been established for Big Barnham Lake through 13 years of participation in the Self Help program. There has been no significant change in the water quality over the period of record. The degree of water clarity has been high with mean annual Secchi disc readings ranging between 4 and 7 m. The densities of suspended algae have been moderate with chlorophyll a values ranging between 1.5 and 4.0 ug/L. Big Barnham Lake would appear to be a lake on the borderline between being unenriched and moderately enriched, with good water quality. We hope that participation in the Self Help program will continue in the future to maintain the excellent record of sampling on Big Barnham Lake.

BIG HAWK LAKE

STANHOPE TOWNSHIP

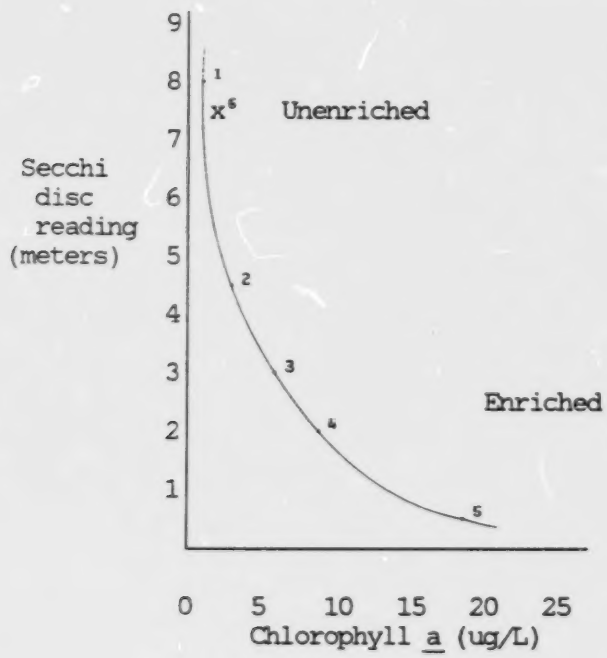
COUNTY OF HALIBURTON

Table 1: Secchi disc (m) and chlorophyll a (ug/L) data collected from Big Hawk Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 14 | 7.5 | 1.1 |
| Jun 28 | 7.0 | 1.8 |
| Jul 12 | 8.0 | 1.4 |
| Jul 26 | 7.5 | 2.1 |
| Aug 3 | 7.5 | 1.8 |
| Aug 16 | 7.0 | 2.2 |
| | 7.4 | 1.7 |

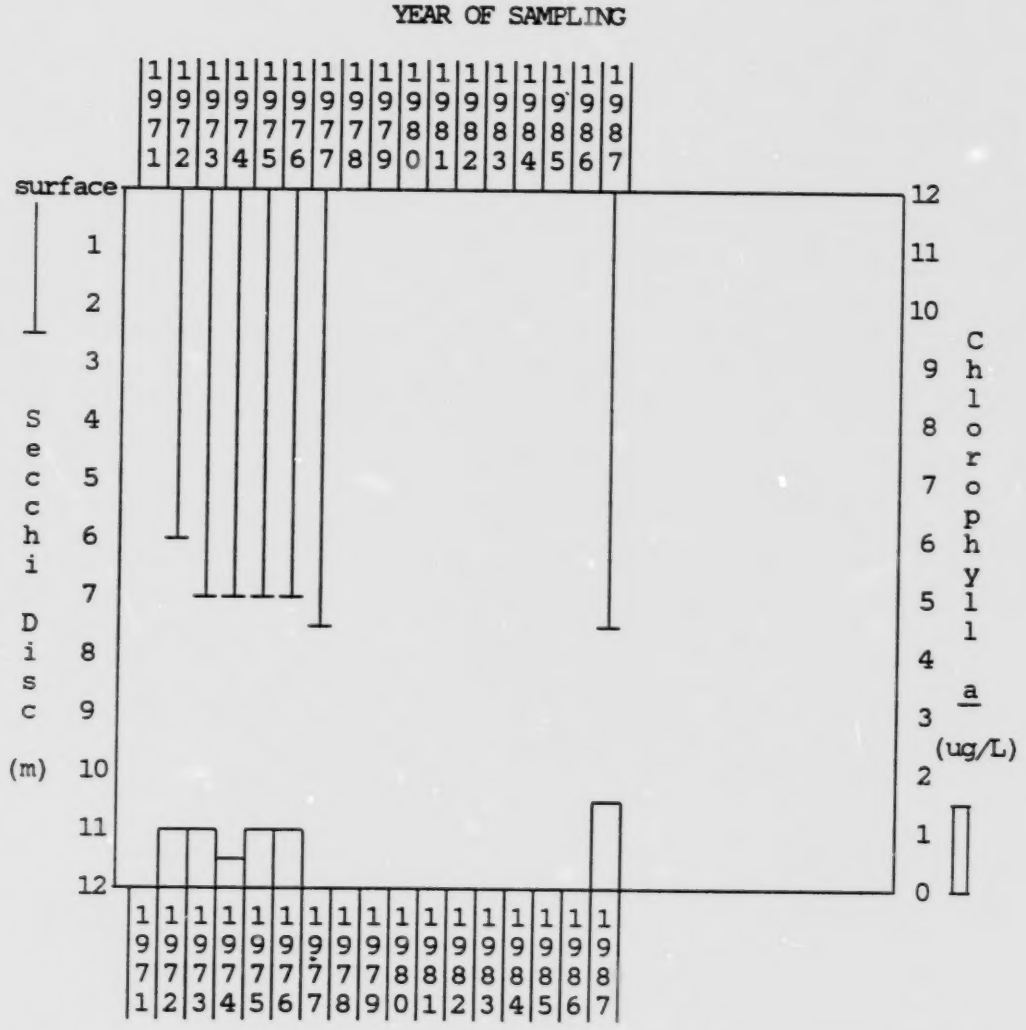
Big Hawk Lake was sampled on 6 occasions in 1987. The lake had a high degree of water clarity with an average Secchi disc measurement of 7.4 m. The densities of suspended algae were low as indicated by the seasonal average chlorophyll a level of 1.7 ug/L. The 1987 data suggest that Big Hawk Lake is unenriched with excellent water quality.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Big Hawk Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




1 Hall's Lake - 1985
2 Koshlong Lake - 1985
3 George's Lake - 1985
4 Lake St. John - 1985
5 Lake Scugog - 1985 Williams Point
6 Big Hawk Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Big Hawk Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




We now have 6 years of Secchi disc and chlorophyll a data from Big Hawk Lake. The lake was sampled on a regular basis between 1972 and 1977 during which time the water quality was excellent with high transparency and low chlorophyll a concentrations. 1987 was the first year since 1976 in which sufficient sampling was conducted to adequately assess the water quality. Water transparency was high and chlorophyll a concentrations were low, indicating no change in the water quality characteristics of Big Hawk Lake since the mid 1970s. Big Hawk Lake remains unenriched with excellent water quality. We encourage future sampling to extend the monitoring record.

**BIRCH BARK (TROUNCE) LAKE**

**GALWAY TOWNSHIP**

**PETERBOROUGH COUNTY**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Birch Bark Lake in 1987.

| Station | 1 | |
|---|---|---|
| Date | S.D. | Chl.*a* |
| May 28 | 6.2 | 1.6 |
| Jun 5 | 5.5 | 1.9 |
| Aug 31 | 4.6 | 2.8 |
| Sep 7 | 6.1 | 1.7 |
| | 5.6 | 2.0 |

From sampling in 1987 it would appear that Birch Bark Lake is maintaining a relatively unenriched status. Water clarity was moderately high with Secchi disc readings of between 4.6 and 6.2 m. Levels of suspended algae were low with chlorophyll *a* concentrations ranging between 1.6 and 2.8 ug/L. However, these observations are based on only 4 sampling dates and it is felt that a minimum of six sampling dates is required to obtain reliable seasonal means. We suggest that Birch Bark Lake be sampled more frequently in 1988.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Birch Bark Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

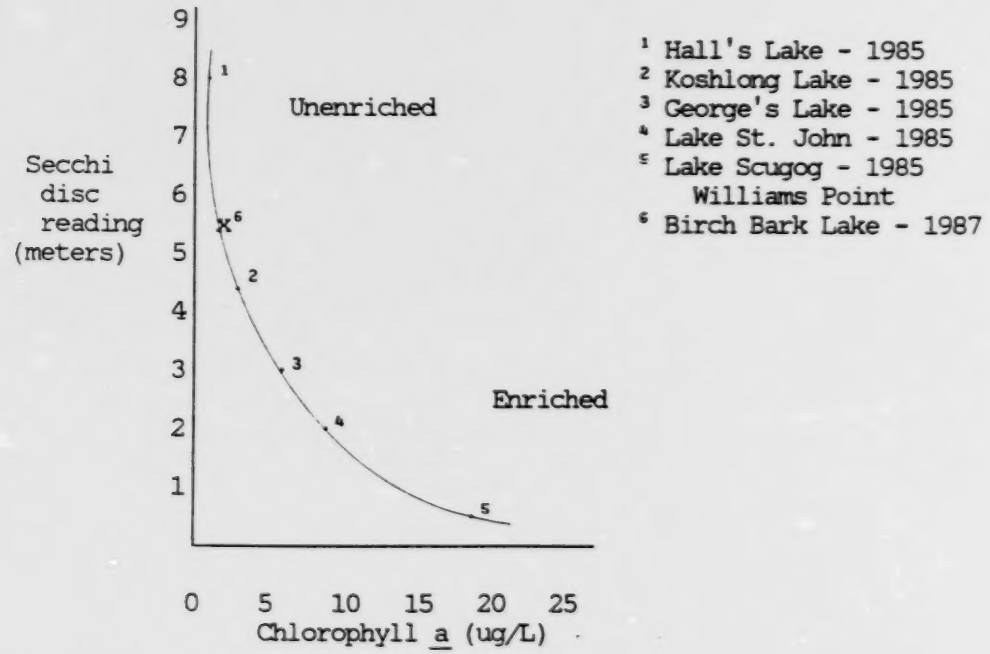
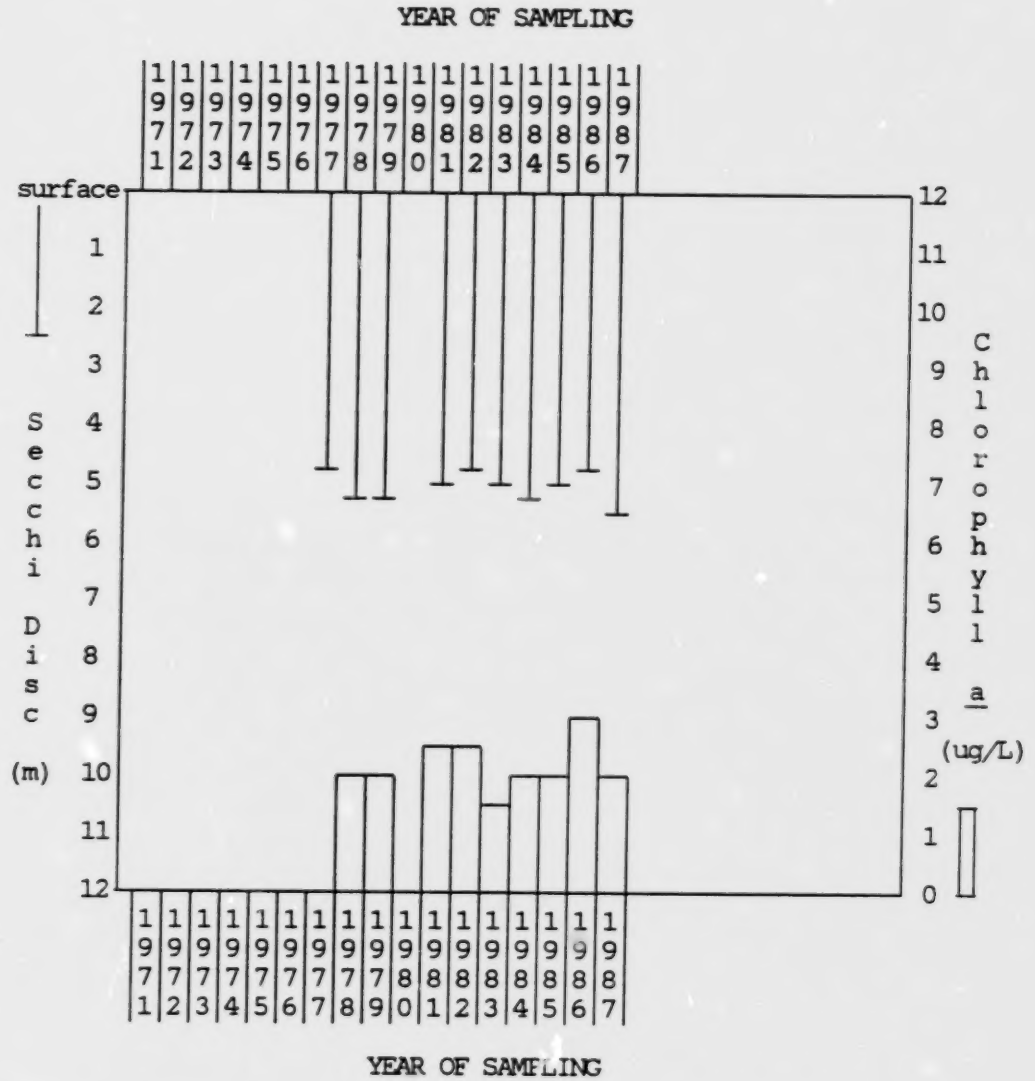


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Birch Bark Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




A good record of water quality has been established for Birch Bark Lake with 1987 being the tenth year of sampling for transparency and algal density. Over this period the water quality has not changed appreciably. Average chlorophyll a concentrations have remained moderately low while water clarity has been moderately high. On this basis Birch Bark Lake would be classified as being relatively unenriched with good water quality. It is hoped that sampling will continue in 1988 to extend this good monitoring record.

BLACK LAKE

WOOD WARD
TOWNSHIP OF MUSKOKA LAKES

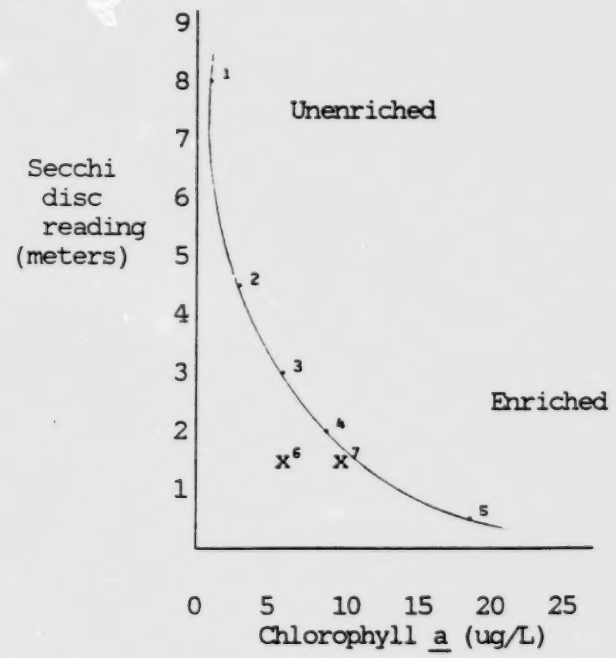
DISTRICT MUNICIPALITY OF
MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Black Lake in 1987.

| Station | South | | North | | Station | South | | North | |
|---|---|---|---|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | Date | S.D. | Chl.a | S.D. | Chl.a |
| May 31 | 1.5 | 5.2 | 1.5 | 5.1 | Aug 16 | 1.5 | 5.4 | 1.5 | 47.1 |
| Jun 7 | 1.5 | 13.5 | 1.5 | 7.8 | Aug 23 | 1.5 | 8.8 | 1.5 | 7.5 |
| Jun 14 | 1.5 | 8.9 | 1.5 | 7.9 | Aug 30 | 1.5 | 4.3 | 1.5 | 5.0 |
| Jun 21 | 1.5 | 3.6 | 1.5 | 4.2 | Sep 7 | 1.5 | 3.8 | 1.5 | 3.4 |
| Jul 5 | 1.5 | 5.1 | 1.5 | 4.9 | Sep 13 | 1.5 | 3.6 | 1.5 | 7.4 |
| Jul 12 | 1.5 | 6.0 | 1.5 | 12.8 | Sep 20 | 1.5 | - | 1.5 | - |
| Jul 19 | 1.5 | 7.3 | 1.5 | 5.5 | Sep 27 | 1.5 | 5.1 | 1.5 | 5.3 |
| Jul 27 | 1.5 | 7.8 | 1.5 | 6.8 | Oct 4 | 1.5 | 7.9 | 1.5 | 13.3 |
| Aug 10 | 1.5 | 3.7 | 1.5 | 3.9 | Oct 12 | 1.5 | 7.5 | 1.5 | 7.3 |
| | | | | | | 1.5 | 6.3 | 1.5 | 9.1 |

(For text, see following page)

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Black Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point

Black Lake - 1987
[6]North Station
[7]South Station

BLACK LAKE (Page 2)

WOOD WARD
TOWNSHIP OF MUSKOKA LAKES

DISTRICT MUNICIPALITY OF
MUSKOKA

In 1987 Black Lake was sampled at two locations on 18 occasions providing an excellent water quality data set. These data indicated that Black Lake was characterized by low water transparency and high suspended algal concentrations (averages of 6.3 and 9.1 ug/L for the South and North ends of the lake, respectively). Algal concentrations indicative of "bloom" conditions were observed on 4 occasions. These results reconfirm the enriched status of Black Lake.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Black Lake (South station). Averages based on fewer than 4 points were considered unreliable and were not graphed.

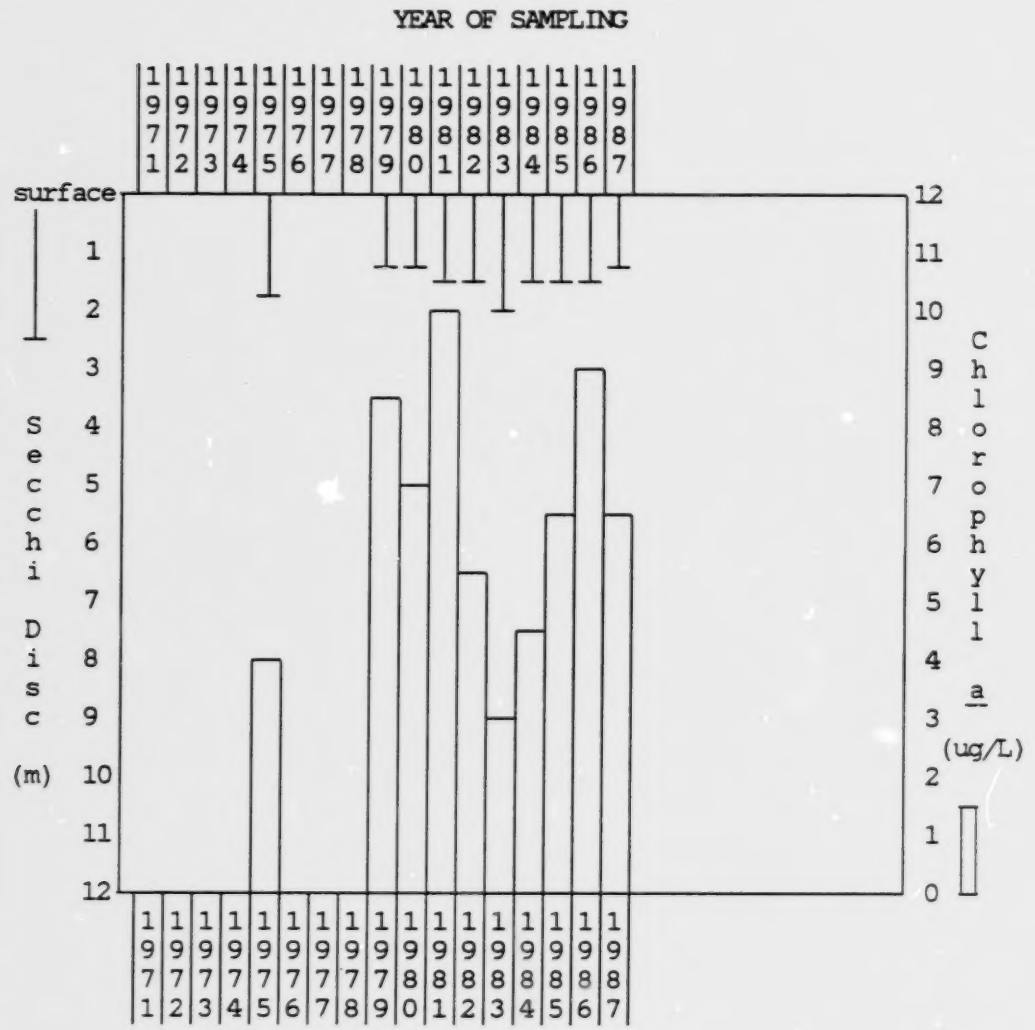
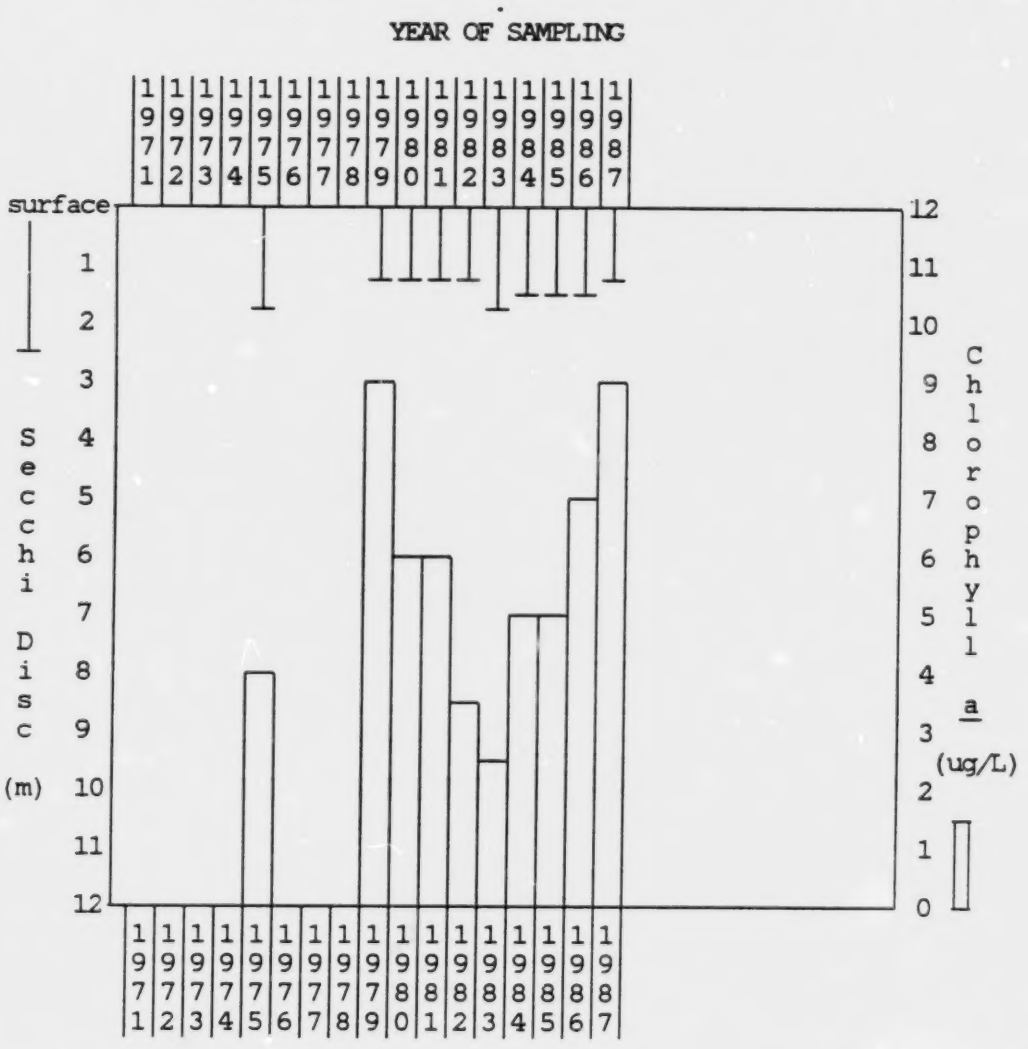


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Black Lake (North station). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Black Lake has been sampled on a continuous basis since 1979 providing an excellent record of water quality. Despite some improvement in the early 1980's, the lake water has generally demonstrated low transparency and high and variable concentrations of suspended algae indicative of enriched nutrient conditions. We hope that sampling will continue in 1988 to increase the record of observations for this lake.

**BOSHKUNG LAKE**

**STANHOPE TOWNSHIP**

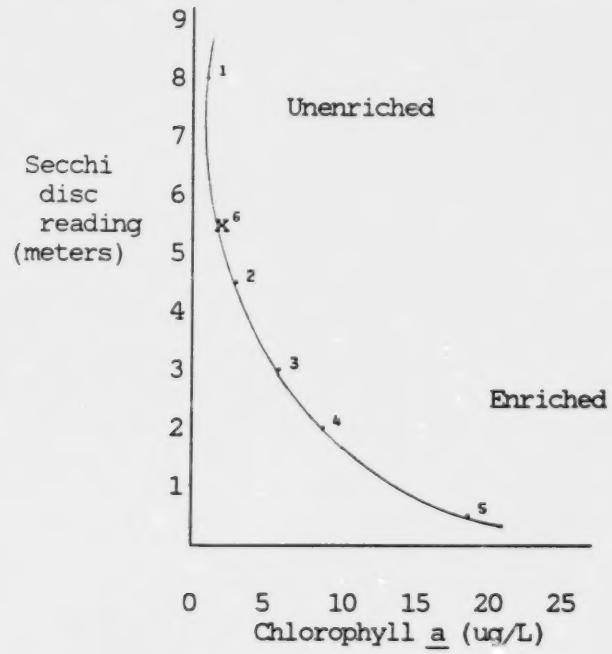
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Boshkung Lake in 1987.

| Station | Mid-Lake | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 18 | 6.5 | 2.0 |
| Jun 25 | 7.25 | 1.6 |
| Jul 23 | 4.5 | 1.9 |
| Jul 30 | 4.75 | 2.5 |
| Aug 18 | 4.5 | 3.0 |
| Sep 26 | 4.75 | 1.2 |
| | 5.4 | 2.0 |

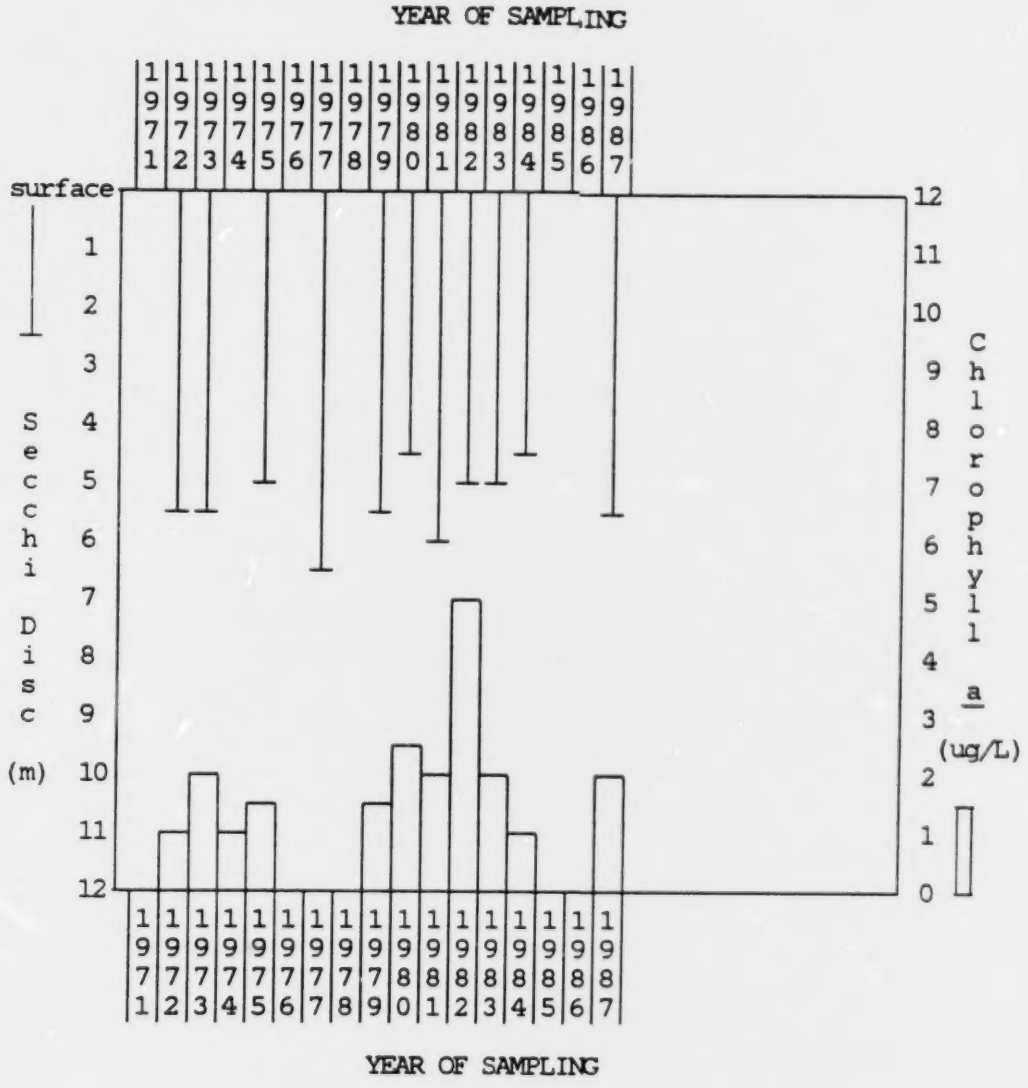
Water sampling of Boshkung Lake was conducted on 6 occasions in 1987, providing good seasonal coverage of water quality. Secchi disc readings averaged 5.4 m indicating a moderately high degree of transparency. Suspended algal concentrations were low with chlorophyll a concentrations ranging from 1.2 to 3.0 ug/L. These data indicate that Boshkung Lake has good water quality and is relatively unenriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Boshkung Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Boshkung Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Boshkung Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




It would appear that Boshkung Lake has reasonably good water quality with a low to moderate degree of enrichment. Sechii disc readings over the last 16 years have averaged between 4.5 and 6.5 m indicating a relatively high degree of transparency. Average seasonal chlorophyll a concentrations have been below 2.5 ug/L with one noticeable exception; in 1982, the seasonal average chlorophyll a concentration approached 5 ug/L. Future sampling will be valuable in interpreting the anomalous 1982 chlorophyll result.

BRADY LAKE

HINDON TOWNSHIP

COUNTY OF HALIBURTON

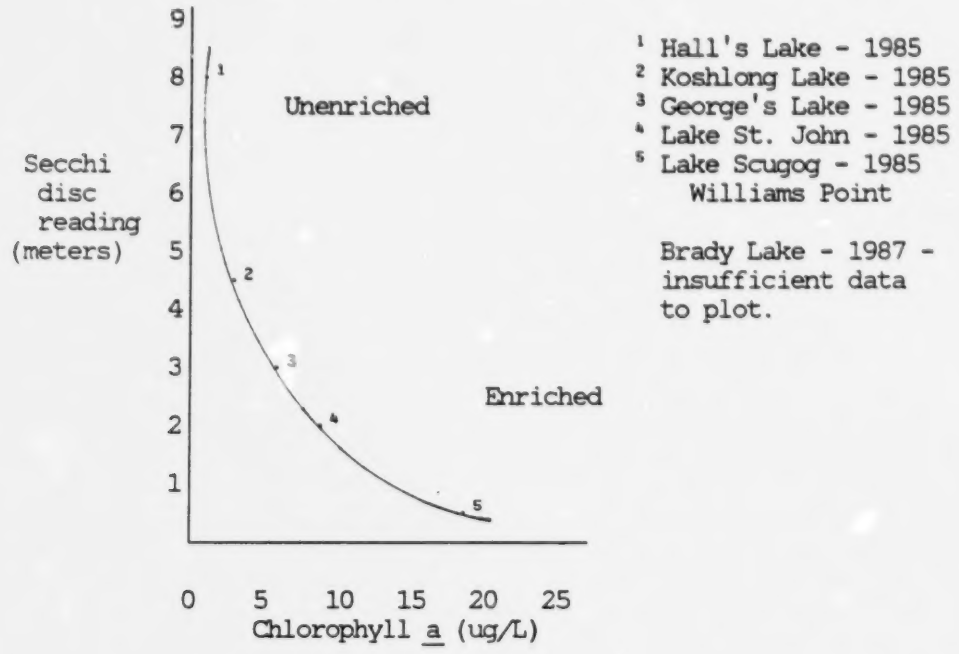
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Brady Lake in 1987.

| Station | Deepest Point | | Bay Channel | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl a |
| Jul 25 | 2.5 | 4.4 | 2.75 | 4.6 |
| Aug 9 | 3.0 | 4.9 | 2.0 | 4.0 |
| Aug 23 | 3.0 | L.A. | 2.5 | L.A. |

L.A. = Lab Accident -- sample was lost.

In 1987 sampling was not conducted frequently enough to obtain meaningful results. To get a good indication of the lake's water quality, sampling should be conducted on a minimum of 6 occasions distributed in time evenly from late May to late September.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Brady Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.



BRUCE LAKE

MEDORA WARD
TOWNSHIP OF MUSKOKA LAKES

DISTRICT MUNICIPALITY OF MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Bruce Lake in 1987.

| Station | East | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 21 | 3.5 | 3.5 |
| Jul 12 | 3.25 | 3.2 |
| Aug 9 | 3.2 | 5.7 |
| Aug 16 | 3.15 | 2.6 |
| Aug 23 | 2.75 | 3.9 |
| Aug 30 | 2.75 | 3.8 |
| | 3.1 | 3.8 |

Bruce Lake was sampled on six occasions in 1987 providing a good record of the summer water quality. Secchi disc readings averaged 3.1 m indicating a relatively low degree of water clarity. Chlorophyll a concentrations ranged from 2.6 to 5.7 ug/L (average = 3.8 ug/L) indicating moderately high densities of suspended algae in the water column.

The water quality of Bruce Lake in 1987 would be considered to be moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Bruce Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

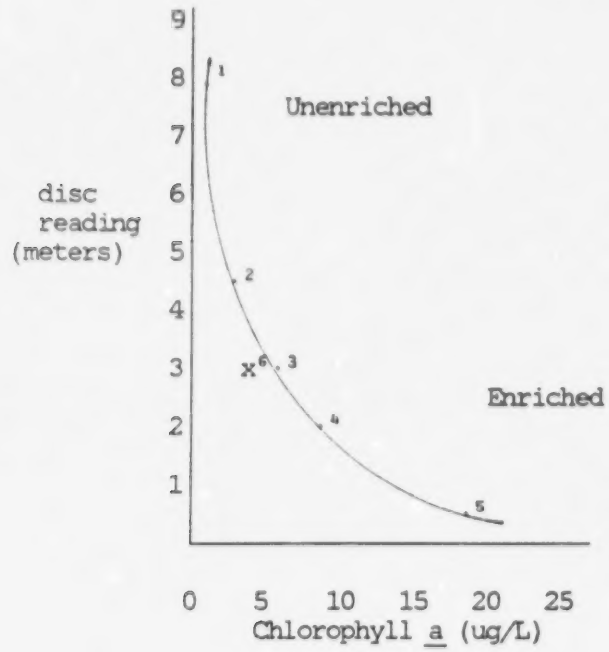
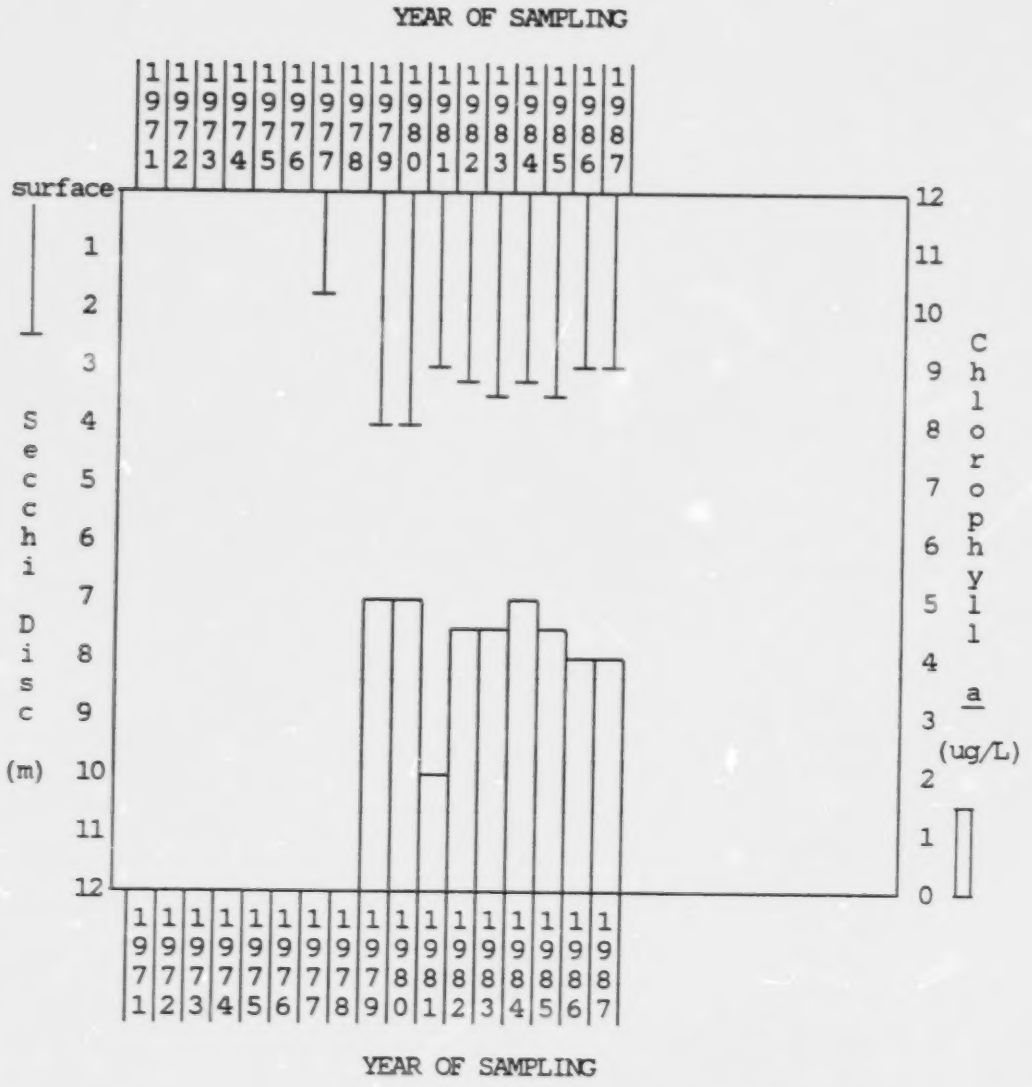


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Bruce Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Bruce Lake has now been sampled for 10 years and a good record of water quality results has been established. Water quality has remained constant with a transparency of about 3 to 4 meters and suspended algal densities approximating 4 to 5 ug/L. Two noticeable exceptions were in 1977 when the water transparency was considerably reduced and in 1981 when concentrations of suspended algae in the water column were lower. The results of 1987 confirm Bruce Lake's status as a moderately enriched lake. We encourage continued sampling of Bruce Lake to augment the long-term record.

**BUCK LAKE**

**STISTED WARD**
**TOWN OF HUNTSVILLE**

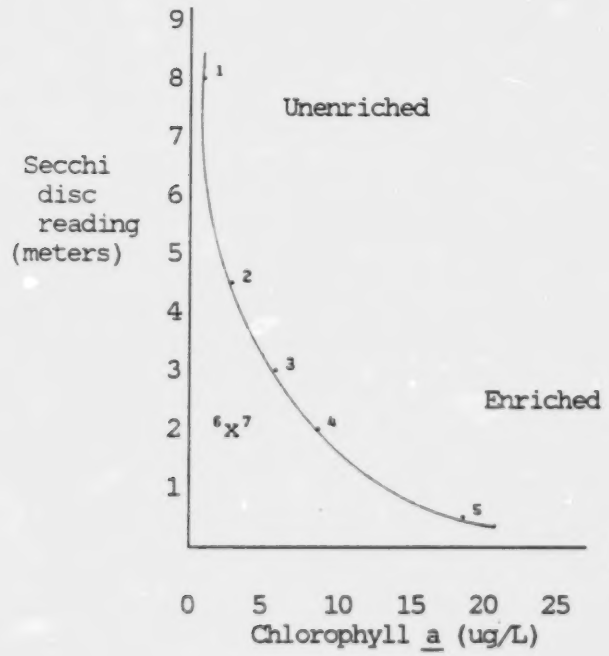
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Buck Lake in 1987.

| Station | South Centre | | South East | |
|---|---|---|---|---|
| Date | S.D. | Chl.*a* | S.D. | Chl.*a* |
| May 24 | 1.7 | 2.8 | 1.5 | 3.6 |
| Jun 23 | 1.6 | 2.3 | 1.7 | 1.8 |
| Jul 8 | 1.6 | 2.9 | 1.7 | 2.9 |
| Jul 19 | 1.6 | 3.9 | 1.6 | 4.6 |
| Aug 9 | 2.0 | 1.9 | 2.1 | 2.0 |
| Aug 25 | 2.5 | 4.2 | 2.3 | 4.7 |
| | 1.8 | 3.0 | 1.8 | 3.3 |

Six sampling events in 1987 provided a good record of the summer water quality of Buck Lake. Transparency of the water was low, averaging 1.8 m at both sampling locations. The density of suspended algae was moderately high ranging from 1.8 to 4.7 ug/L and averaging 3.0 and 3.3 ug/L at the South Centre and South East stations, respectively.

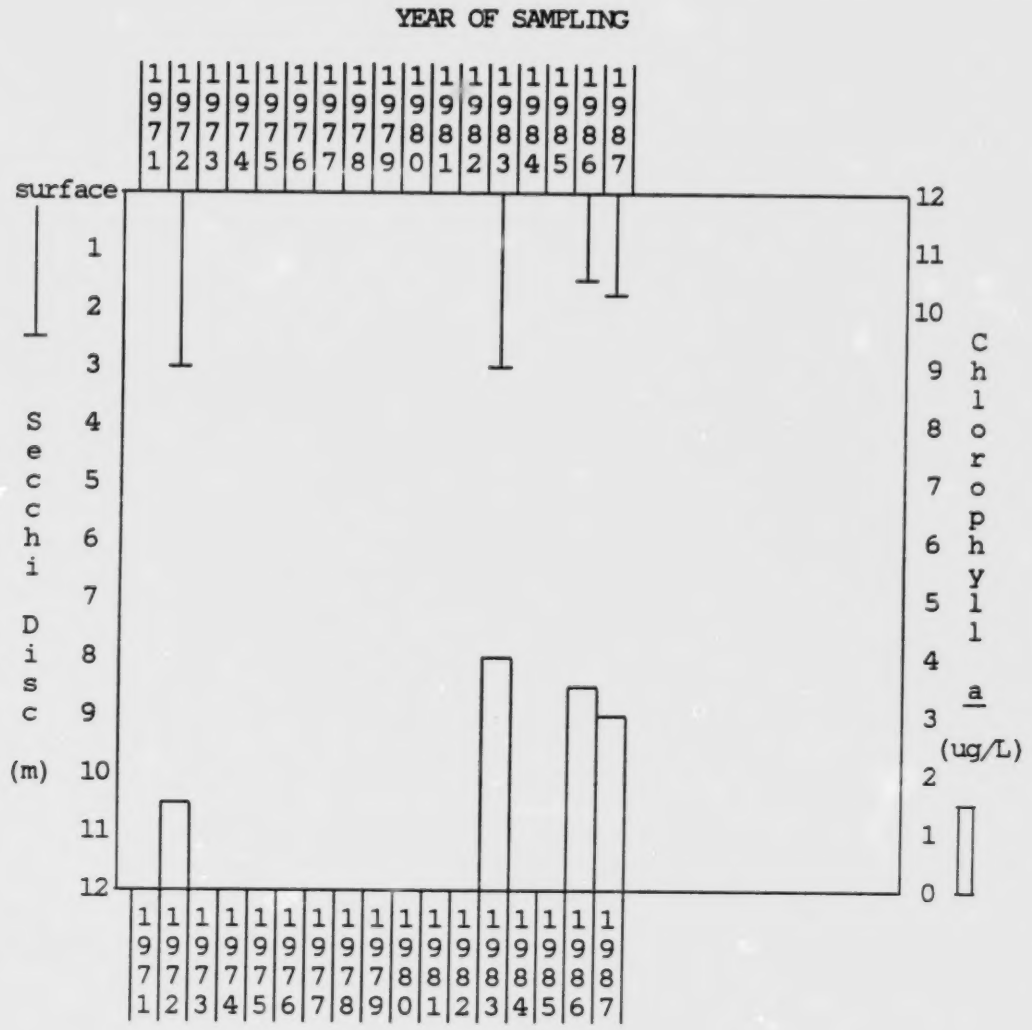
FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Buck Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point

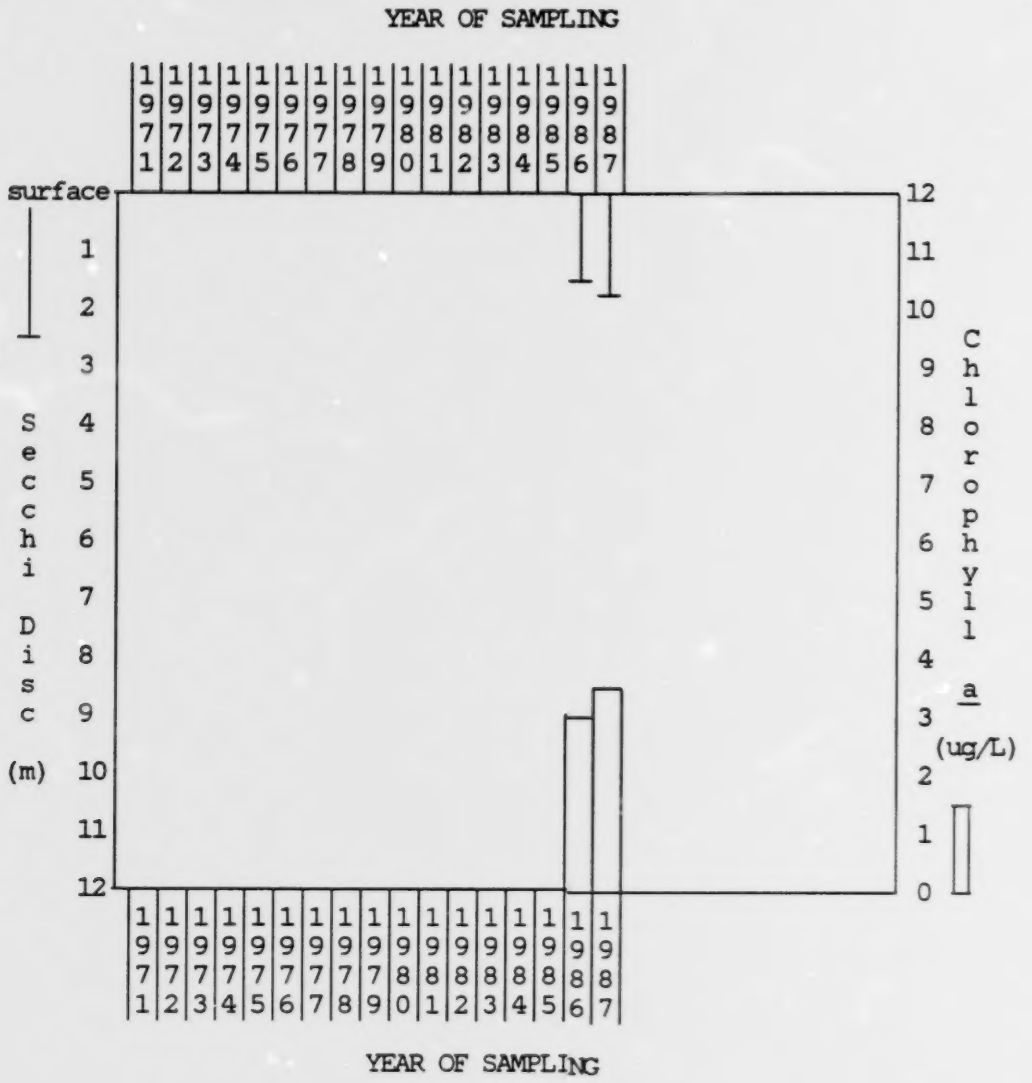
Buck Lake - 1987
[6] South East
[7] South Centre

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Buck Lake (South Centre station). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Based on the few data available it would appear that the water quality at the South Centre station in Buck Lake declined between 1972 and 1983 with increased concentrations of suspended algae and lower water transparency. Since 1983 water transparency has declined but the algal densities have remained substantially the same or may have declined slightly. At present, based on the South Centre station, Buck Lake would be considered to be an enriched lake. Too few data have been collected from the South East station to identify any water quality trends but the data from this station confirm the nutrient enriched status of Buck Lake. We encourage continued sampling of Buck Lake in the future to establish a better data base on which to base conclusions about the lake's water quality.

Figure 3 : Historical record of average Secchi disc and chlorophyll *a* results for Buck Lake (South East station). Averages based on fewer than 4 points were considered unreliable and were not graphed.



**BUCKSKIN LAKE**

**MONMOUTH TOWNSHIP**

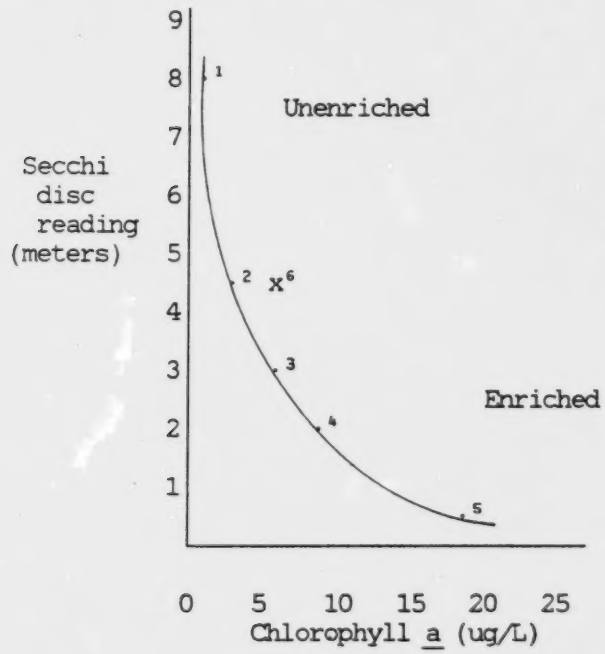
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Buckskin Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.*a* |
| Jul 20 | 3.5 | 6.0 |
| Jul 26 | 3.7 | 6.3 |
| Aug 18 | 4.9 | 5.2 |
| Aug 23 | 4.5 | 8.2 |
| Sep 28 | 4.25 | 4.5 |
| | --- | --- |
| | 4.2 | 6.0 |

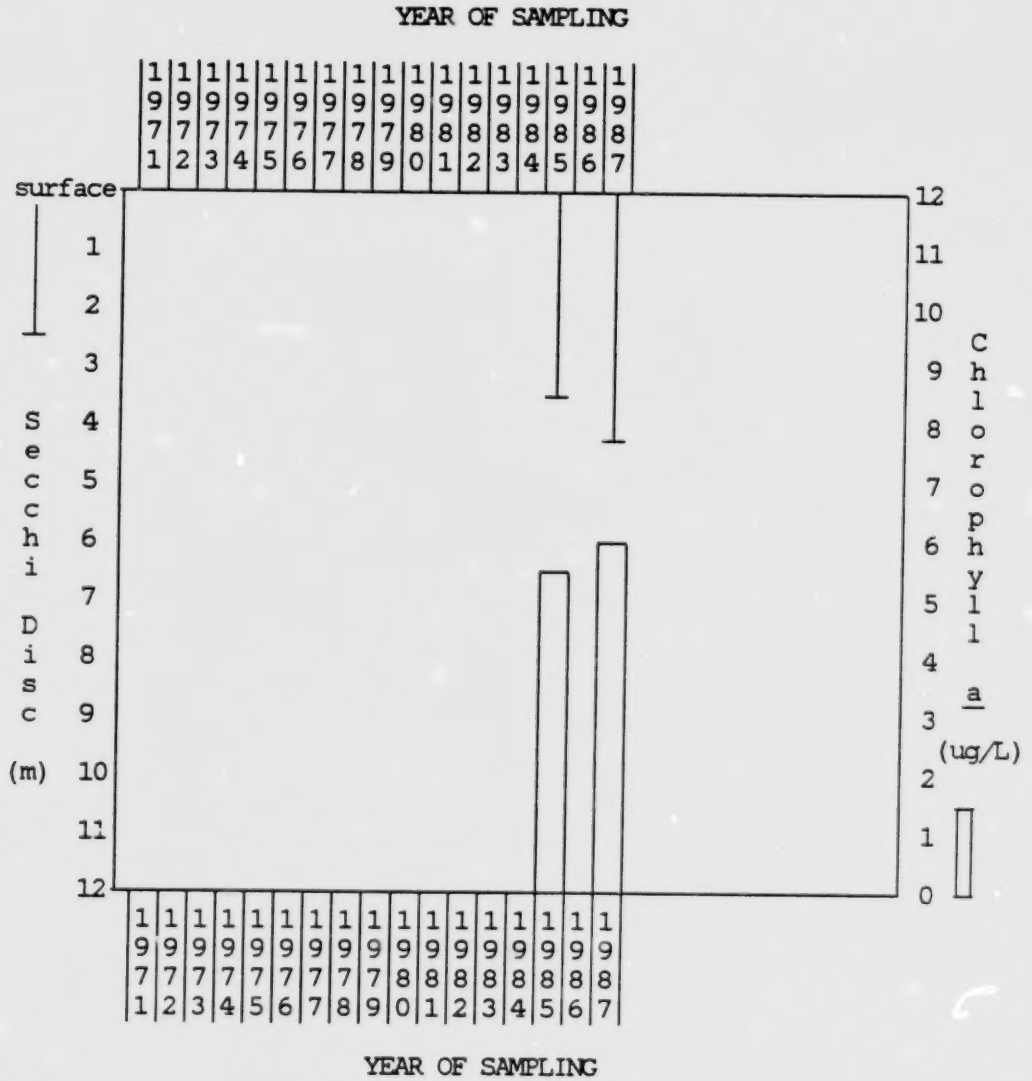
Buckskin Lake was sampled on five occasions in 1987 from July 20th. to September 28th. The chlorophyll *a* concentrations were high ranging from 4.5 to 8.2 ug/L and indicated high densities of suspended algae. The average Secchi disc reading of 4.2 m was not as low as might be expected from the density of the algae present in the water column but overall the Secchi disc readings and the chlorophyll *a* concentrations indicated that the water quality of Buckskin Lake was moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Buckskin Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Buckskin Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Buckskin Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Too few data have been collected from Buckskin Lake to permit any analysis of long-term trends in water quality. However, both water transparency and chlorophyll a concentrations were similar in 1985 and 1987, and in both years Buckskin Lake would have been considered to be on the borderline between being moderately enriched and enriched. We encourage future sampling on Buckskin Lake to establish a long-term record of water quality.

CANNING LAKE

MINDEN & SNOWDON TOWNSHIPS

COUNTY OF HALIBURTON

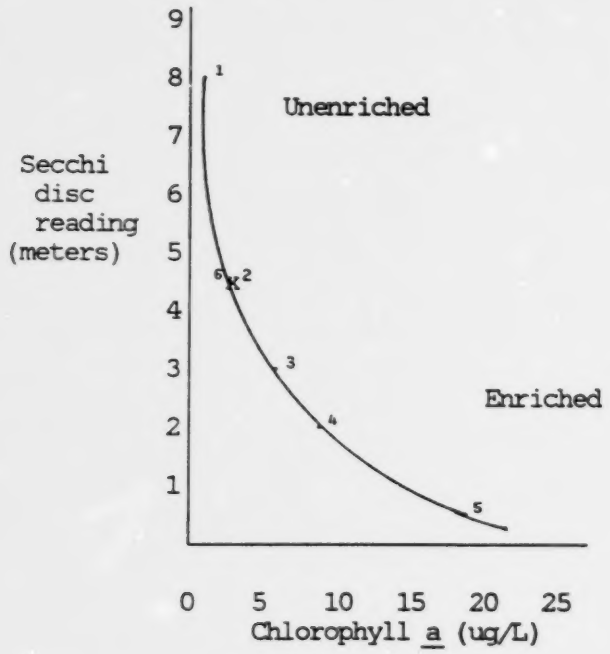
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Canning Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.a |
| May 18 | 4.0 | 7.9* |
| Jun 14 | 3.5 | 2.9 |
| Jun 21 | 4.0 | L.A. |
| Jul 5 | 4.0 | 3.0 |
| Aug 3 | 4.0 | 2.6 |
| Aug 17 | 5.0 | 3.7 |
| Aug 31 | 5.0 | 2.9 |
| Sep 7 | 4.8 | 3.2 |
| | 4.3 | 3.7 |

In 1987 sampling was conducted on eight occasions providing an excellent record of water quality for the season. The average Secchi depth of 4.3 m and the average chlorophyll a concentration of 3.7 ug/L indicated that Canning Lake was moderately enriched with nutrients.

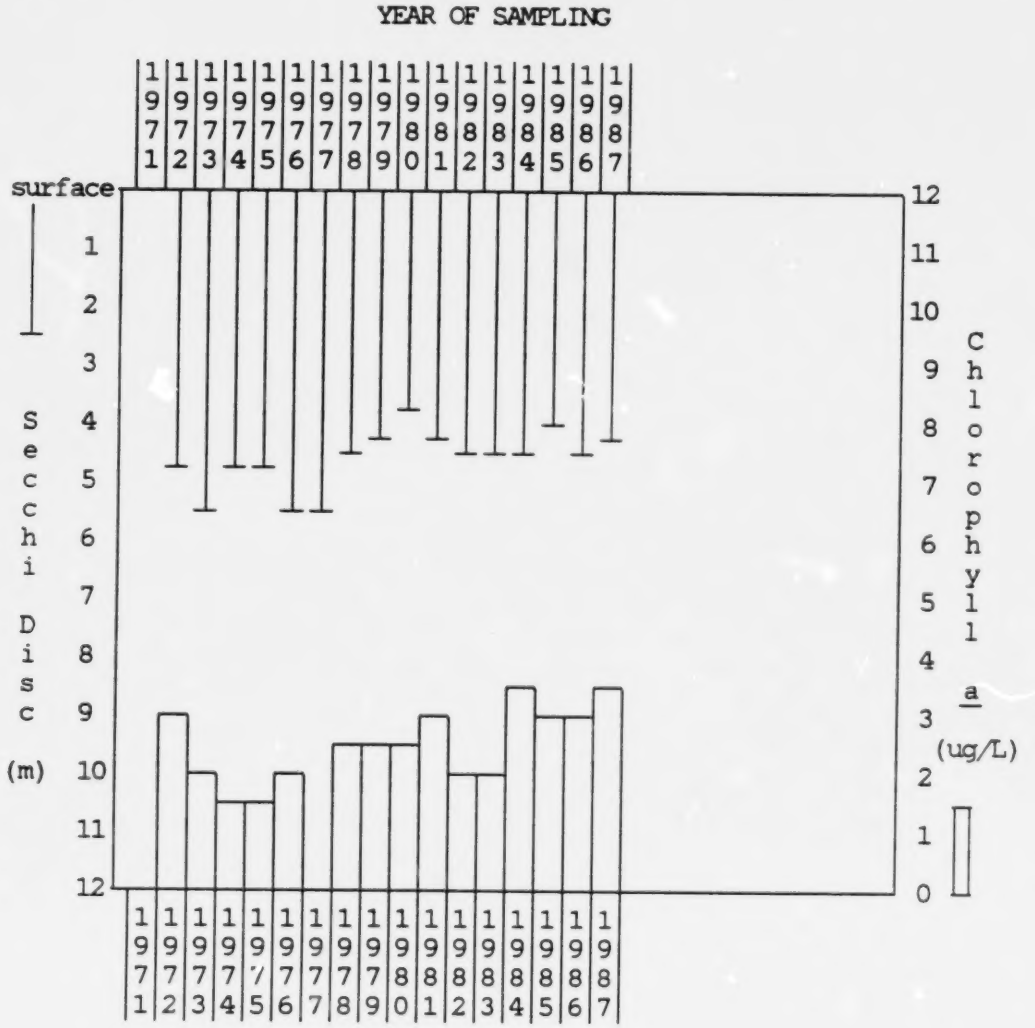
* not 2x Secchi disk depth
L.A. = Lab Accident

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Canning Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Canning Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Canning Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Sixteen years of data have now been collected for Canning Lake providing an excellent record of water quality. Chlorophyll a concentrations have generally been between 1.5 and 4.0 ug/L and Secchi disk readings have been between 3.5 and 5.5 m. Canning Lake has maintained good water quality typical of moderately enriched conditions. There may be a slight indication of deteriorating water quality on the basis of very gradual increases in algal densities over the years and slight decreases in water clarity. Sampling in future years will clarify this.

**CATCHACOMA LAKE**

**CAVENDISH TOWNSHIP**

**COUNTY OF PETERBOROUGH**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Catchacoma Lake in 1987.

| Station | North | | South | | Narrows | |
|---|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | S.D. | Chl.a |
| Jun 22 | 4.2 | 1.6 | 4.4 | 1.6 | 3.4 | 2.6 |
| Jul 5 | 4.7 | 1.5 | 4.3 | 1.4 | 4.3 | 1.2 |
| Jul 12 | 4.2 | 1.6 | 4.6 | 1.7 | 3.5 | 1.5 |
| Jul 26 | 3.8 | 1.3 | 4.7 | 1.2 | 3.3 | 1.1 |
| Aug 24 | 4.2 | 1.6 | 3.7 | 1.4 | 3.8 | 2.4 |
| Sep 7 | 3.6 | 1.4 | 3.4 | 1.7 | 3.2 | 2.2 |
| | 4.1 | 1.5 | 4.2 | 1.5 | 3.6 | 1.8 |

An excellent sampling program was conducted on Catchacoma Lake in 1987 providing water quality data for three areas of the lake. Chlorophyll a concentrations were moderately low with summer averages ranging from 1.5 to 1.8 ug/L. Water clarity was moderate; average Secchi disc readings ranged from 3.6 to 4.2 m. These data indicate that Catchacoma Lake was on the borderline between being unenriched and moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Catchacoma Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

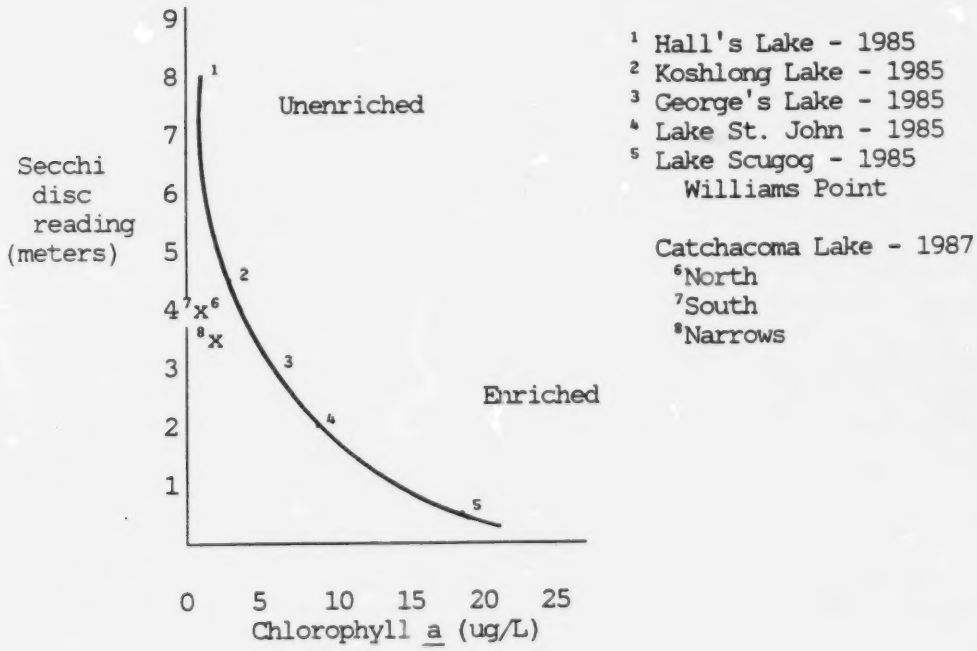


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Catchacoma Lake (North station). Averages based on fewer than 4 points were considered unreliable and were not graphed.

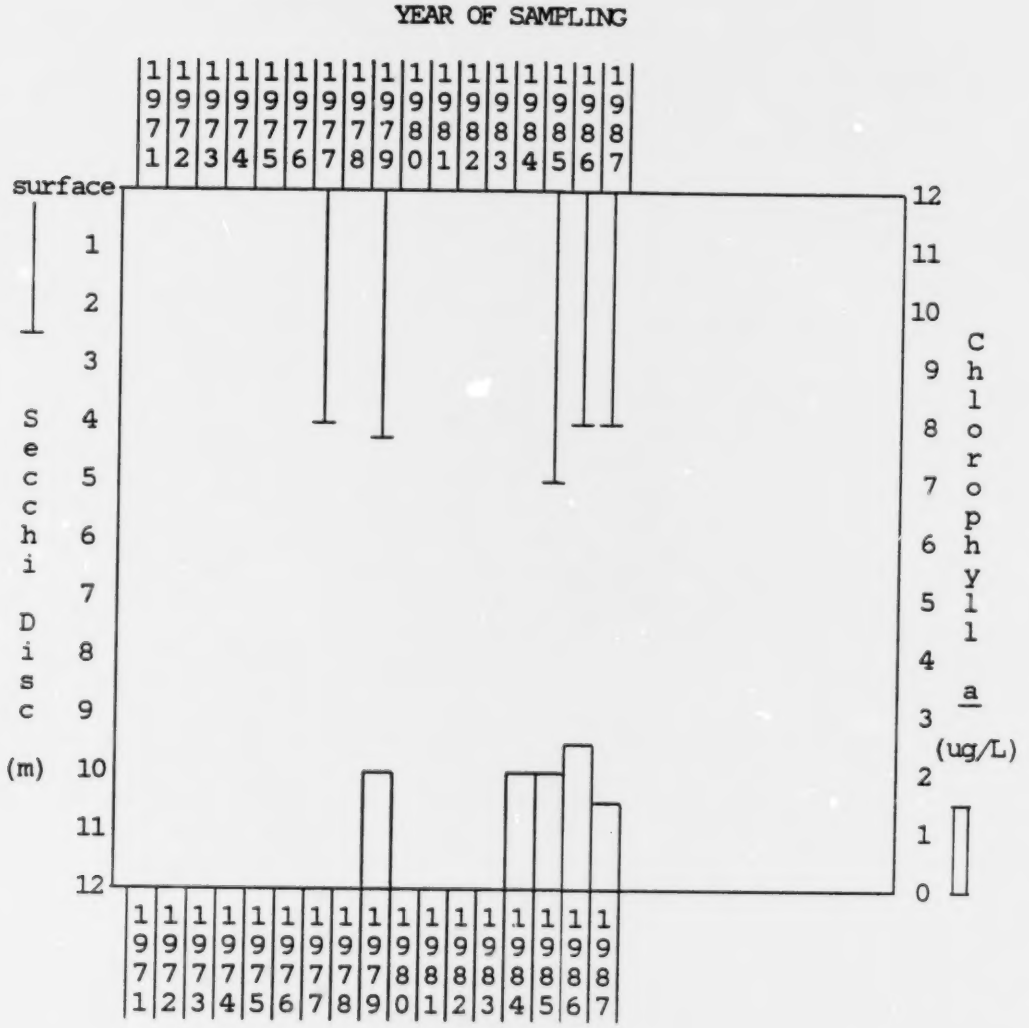


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Catchacoma Lake (South station). Averages based on fewer than 4 points were considered unreliable and were not graphed.

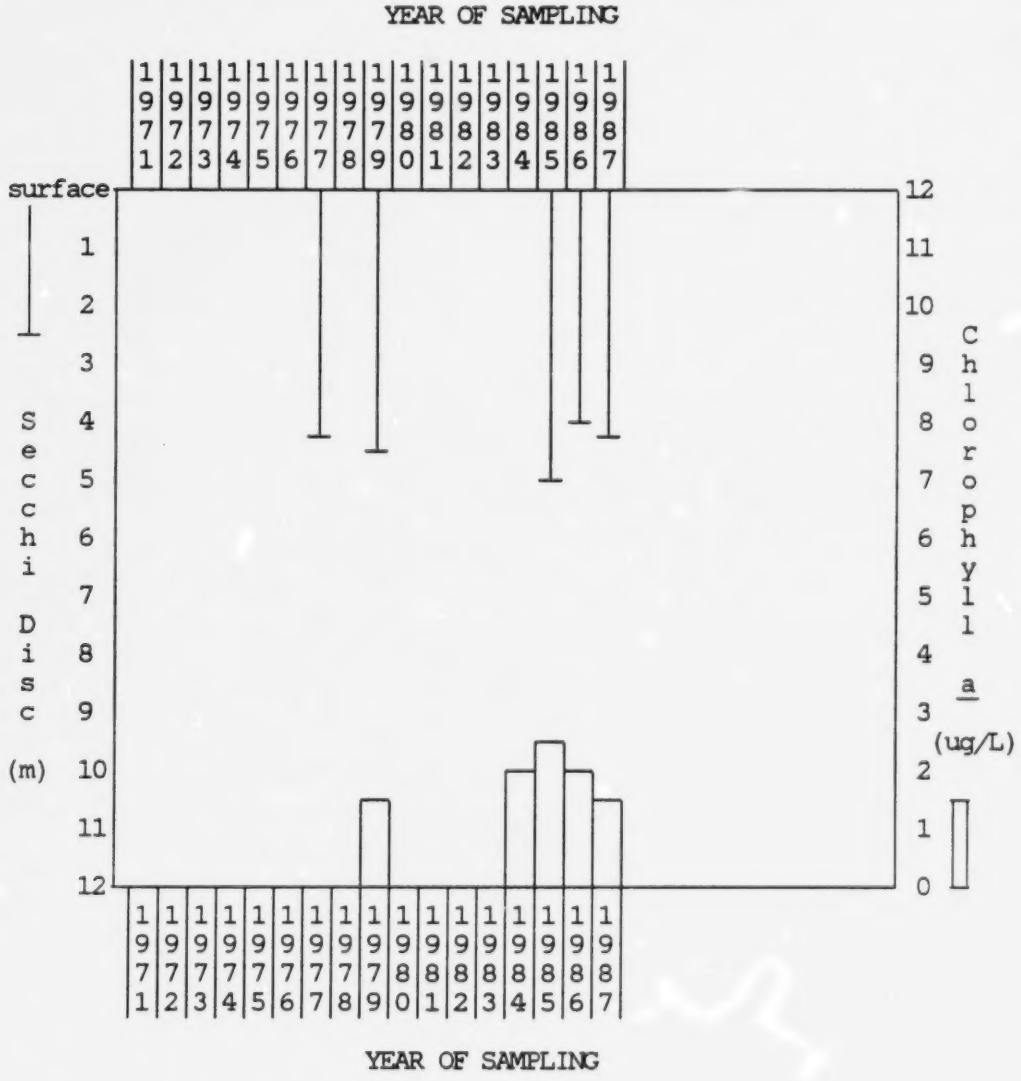
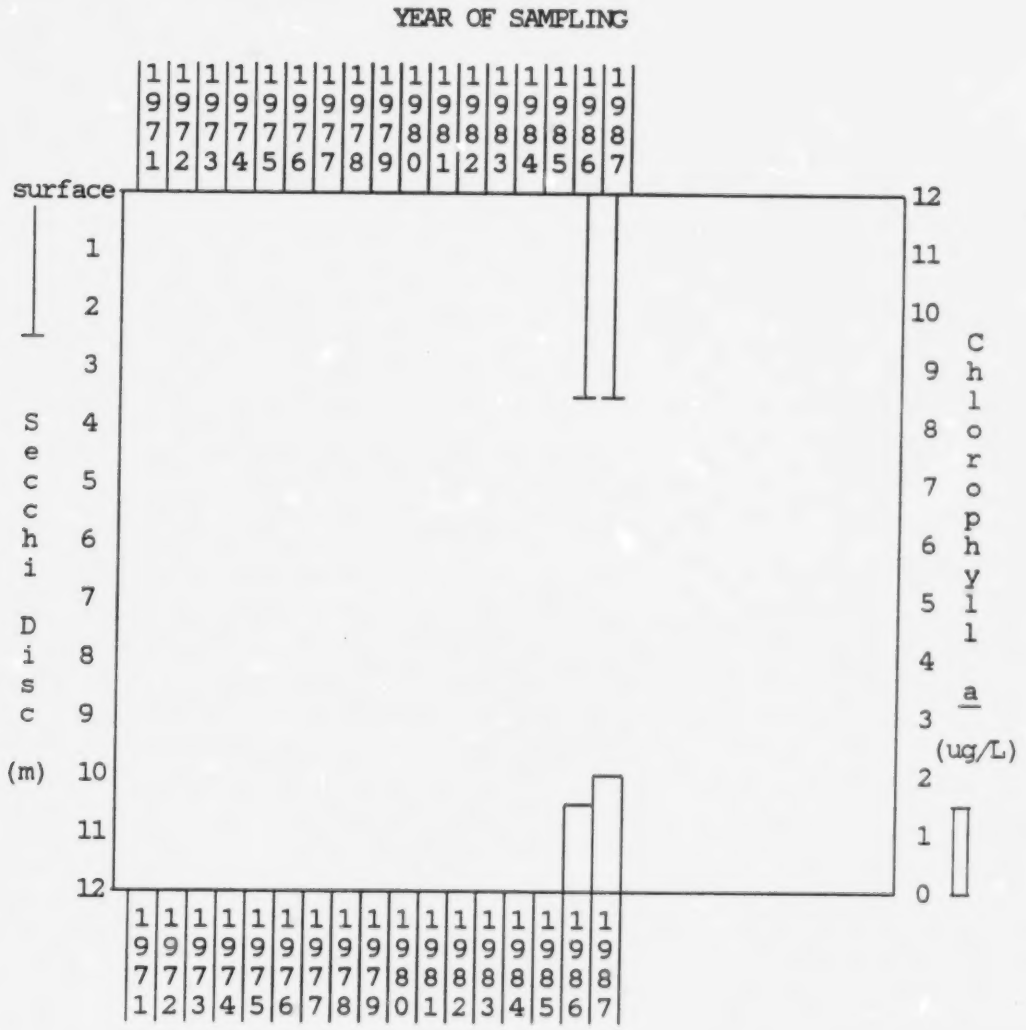


Figure 4 : Historical record of average Secchi disc and chlorophyll a results for Catchacoma Lake (Narrows station). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Over five years of collecting data, Catchacoma Lake has maintained moderately high water clarity and moderately low densities of suspended algae. The water quality of the North and South stations has been similar over this period, with chlorophyll a summer averages ranging between 1.5 and 2.5 ug/L and Secchi depth readings ranging between 4 and 5 m. Data for the Narrows station have not been collected for a sufficient number of years to enable a comparison with other areas of the lake or to establish long term trends, but seem to confirm the unenriched to moderately enriched nature of the lake. We encourage continued sampling of Catchacoma Lake to augment the long-term record of water quality.

CHANDOS LAKE

CHANDOS TOWNSHIP

COUNTY OF PETERBOROUGH

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Chandos Lake in 1987.

| Station | Channel | | South Bay | |
|---|---|---|---|---|
| Date | S.D. | Chl. a | S.D. | Chl a |
| May 17 | 3.5 | 2.4 | 3.4 | 2.7 |
| May 25 | 4.1 | 1.6 | 4.0 | 1.8 |
| Jun 6 | 5.2 | 1.9 | 5.0 | 1.5 |
| Jun 20 | 5.1 | 2.8 | 4.6 | 3.0 |
| Jul 9 | 5.5 | 1.0 | 5.5 | 1.4 |
| Jul 22 | 5.7 | 1.4 | 5.9 | 1.5 |
| Aug 6 | 5.2 | 2.7 | 5.1 | 4.1 |
| Aug 12 | 5.5 | 2.4 | 5.2 | 1.7 |
| Aug 30 | 5.0 | 2.4 | 4.8 | 5.6 |
| Sep 7 | 4.2 | 2.5 | 4.5 | 2.4 |
| | 4.9 | 2.1 | 4.8 | 2.6 |

Chandos Lake was sampled at two locations on ten separate occasions in 1987 providing an excellent record of water quality for the 1987 summer season. Water clarity was moderately high with Secchi disc readings averaging between 4.8 and 4.9 m. Average chlorophyll a concentrations of between 2.1 and 2.6 ug/L indicated that algal densities were moderately low. Chandos Lake would be considered to be moderately enriched with nutrients in 1987.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Chandos Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

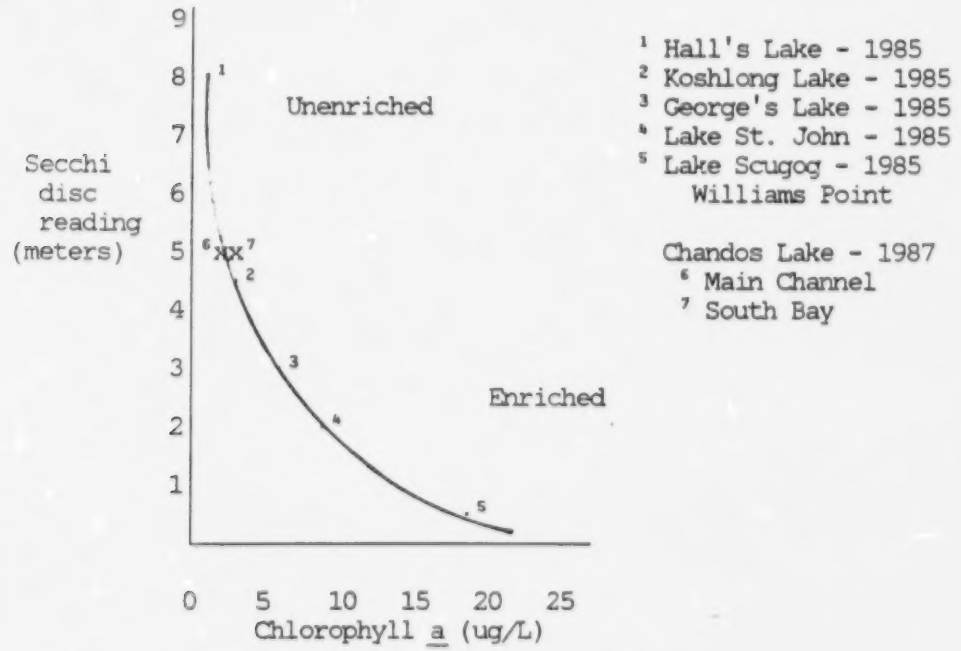


Figure 2 : Historical record of average Secchi disc and chlorophyll *a* results for Chandos Lake (Channel). Averages based on fewer than 4 points were considered unreliable and were not graphed.

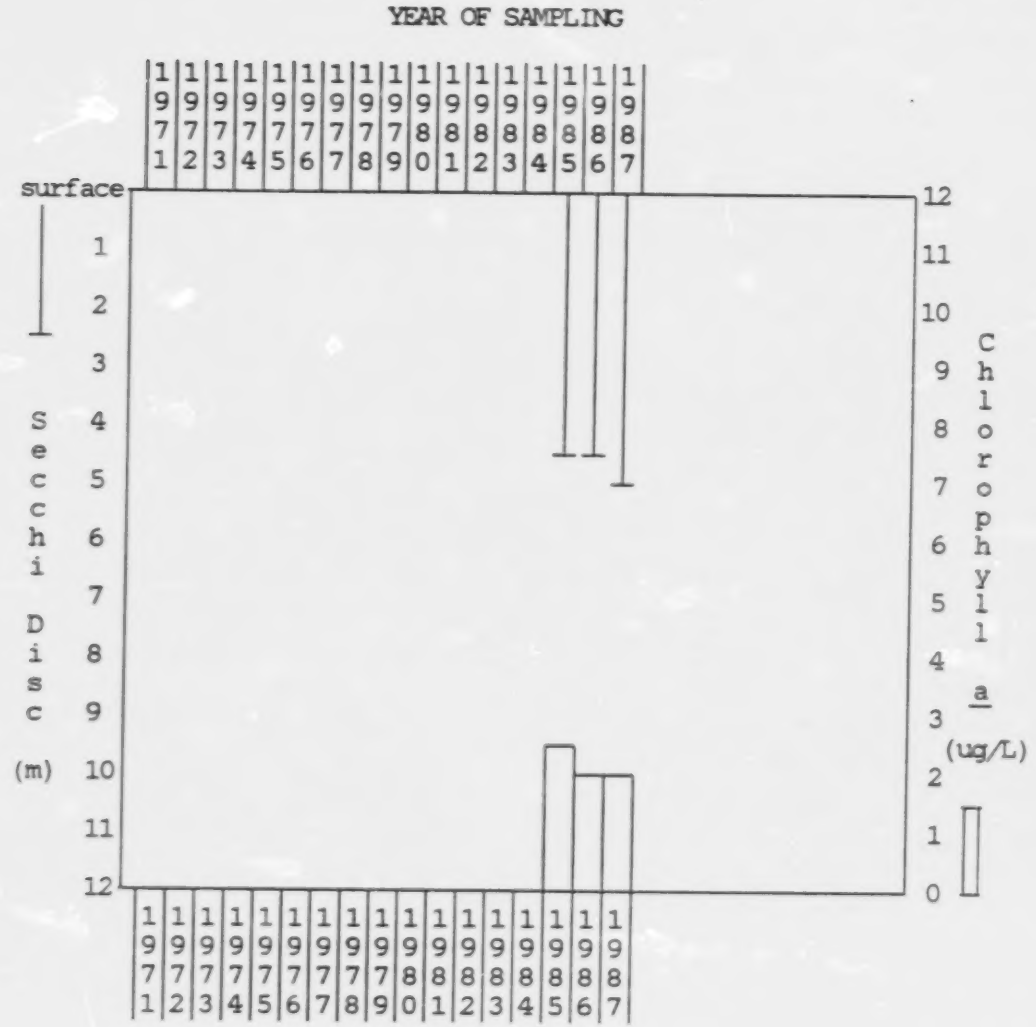
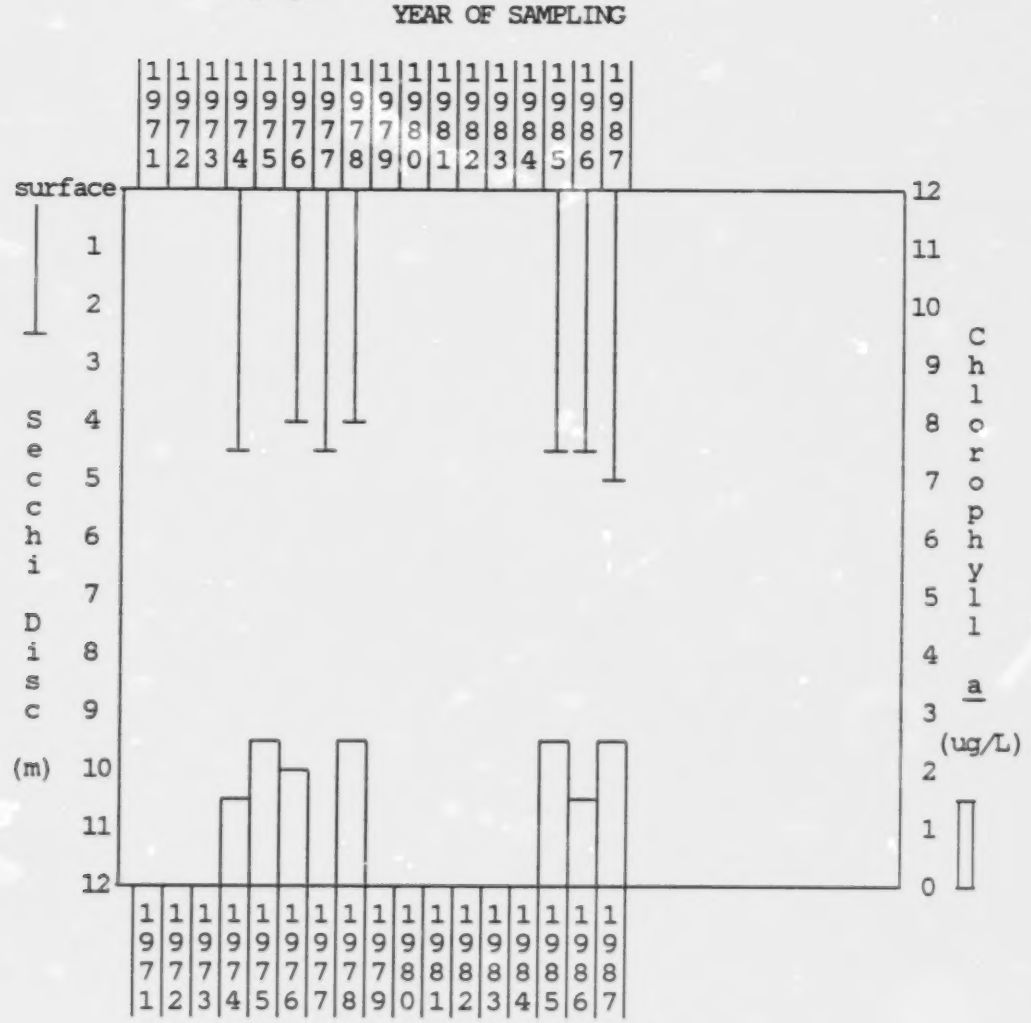


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Chandos Lake (South Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Chandos Lake has been sampled over seven different summer seasons starting in 1974. Most sampling has been conducted at the South Bay station but in the last 3 years, sampling has been conducted in the main channel as well. It would appear that the water quality of Chandos Lake has remained relatively stable with moderately high water clarity (Secchi disc readings = 4 to 5 m) and relatively low suspended algal densities (chlorophyll a concentrations = 1.5 to 2.5 ug/L). Too few data have been collected from the Channel station to make any definitive statement but the results to date would indicate no significant difference between the Channel station and the South Bay station. We hope that sampling will continue in 1988 so that a long-term record of water quality is established.

**CLEAR LAKE**

**LUTTERWORTH TOWNSHIP**

**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data from Clear Lake in 1987.

| Station | North End | | Centre | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 6 | 5.5 | 1.5 | 6.0 | 1.5 |
| Jun 14 | 5.0 | 1.9 | 5.5 | 1.8 |
| Jun 28 | 5.5 | 1.9 | 5.0 | 1.5 |
| Jul 19 | 5.5 | 0.7 | 6.0 | 0.8 |
| Aug 16 | 7.5 | 1.7 | 7.5 | 1.6 |
| | 5.8 | 1.5 | 6.0 | 1.4 |

In 1987 the water clarity of Clear Lake was high and the algal densities were low. The two sampling stations were similar; Secchi disc readings averaged 5.8 to 6.0 m at the two stations while chlorophyll a concentrations averaged 1.4 to 1.5 ug/L. These data indicate that the waters of Clear Lake were unenriched and of good quality in 1987.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Clear Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

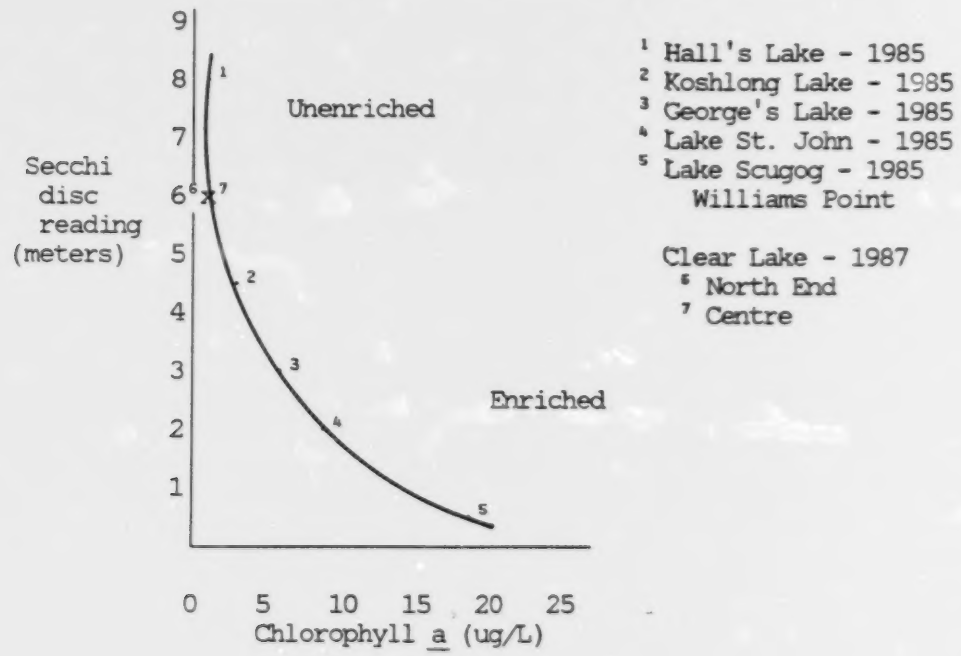


Figure 2 : Historical record for average Secchi disc and chlorophyll a results for Clear Lake (North End). Averages based on fewer than 4 points were considered unreliable and were not graphed.

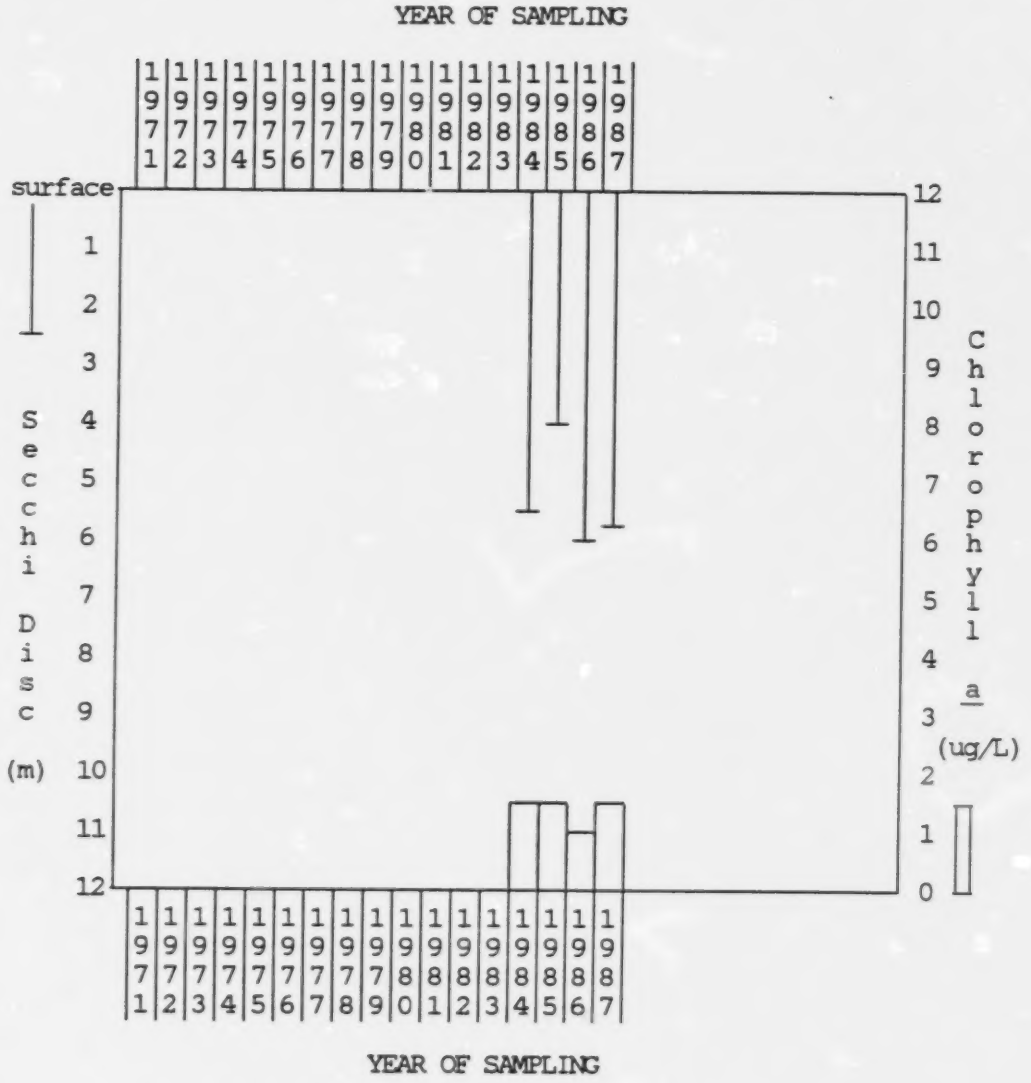
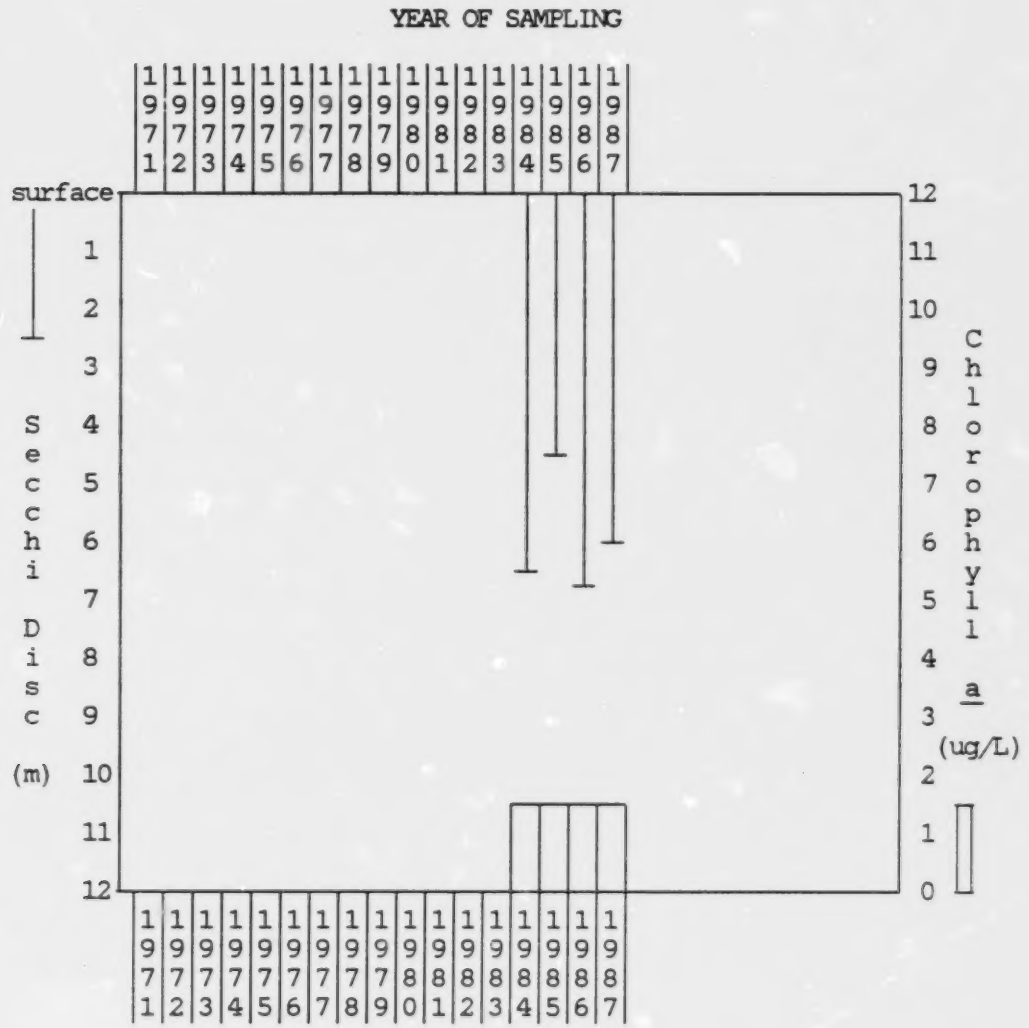


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Clear Lake (Centre). Averages based on fewer than 4 points were considered unreliable and were not graphed.




1987 was the fourth year of sampling for Clear Lake. Chlorophyll a concentrations have remained consistently low over that period, while water clarity has been high for the most part. The data from the two stations have been similar. These data would seem to indicate that Clear Lake is maintaining an unenriched status with good water quality.

CLEARWATER LAKE

MORRISON WARD
TOWN OF GRAVENHURST

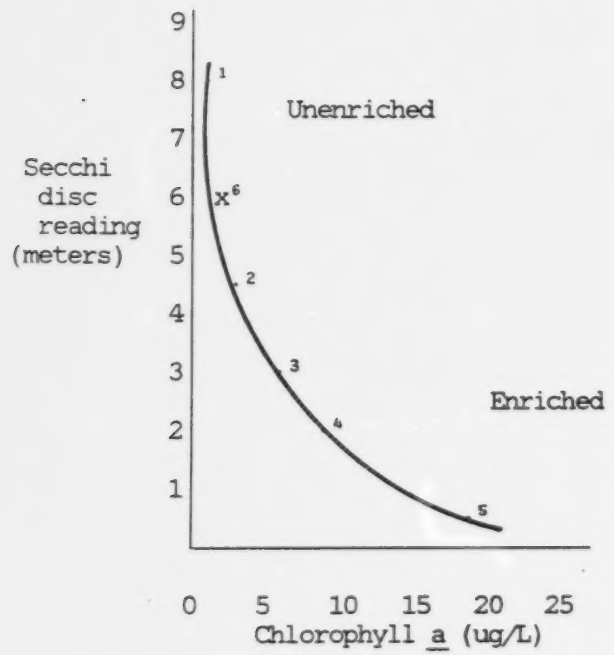
DISTRICT MUNICIPALITY OF
MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Clearwater Lake in 1987.

| Station Date | Centre S.D. | Chl.*a* |
|---|---|---|
| May 31 | 5.5 | 2.4 |
| Jun 14 | 5.8 | 4.2 |
| Jul 5 | 5.6 | 2.2 |
| Jul 26 | 5.1 | 2.2 |
| Aug 16 | 5.5 | 1.7 |
| Aug 30 | 6.5 | 1.8 |
| Sep 13 | 7.1 | 1.1 |
| | 5.9 | 2.2 |

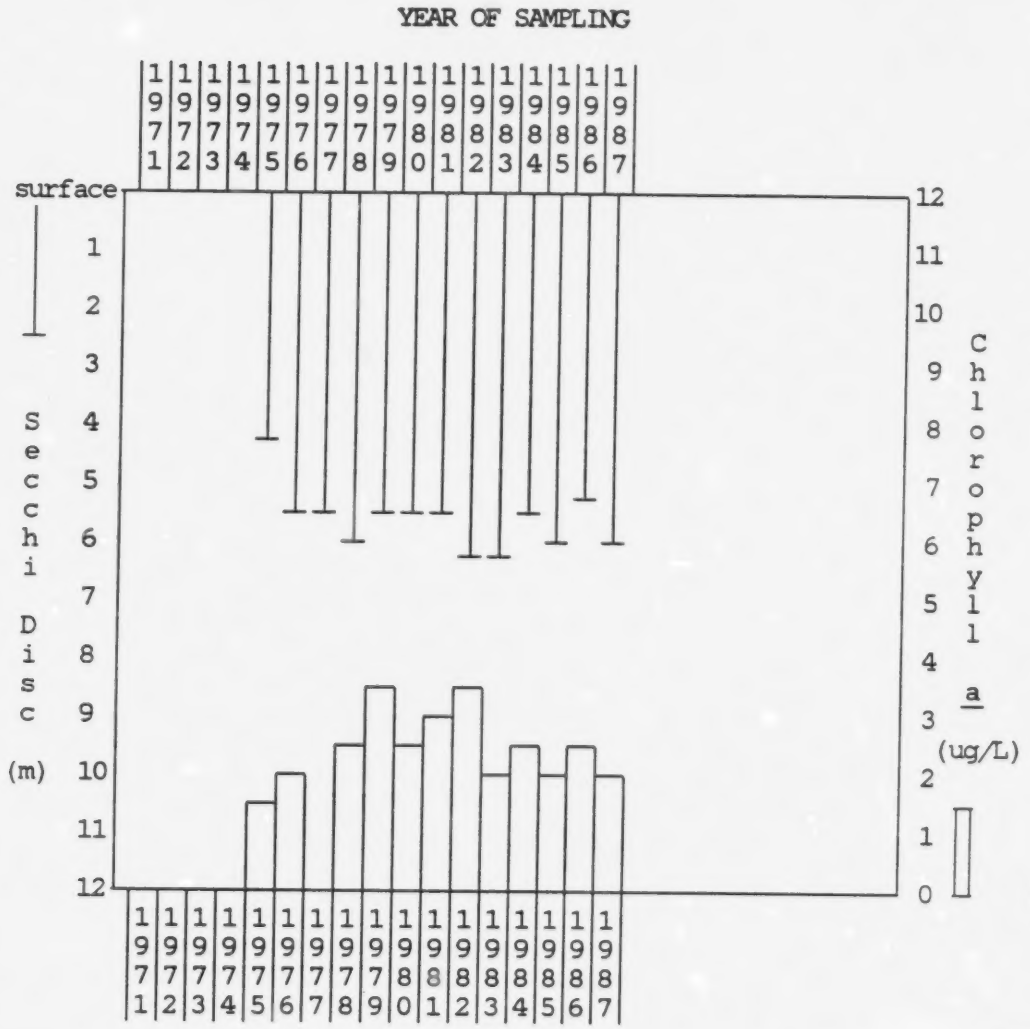
The data obtained from the very good sampling program of 1987 indicated that Clearwater Lake exhibited typically unenriched conditions. Water clarity was high with an average Secchi disc reading of 5.9 m while the average chlorophyll *a* concentration of 2.2 ug/L was indicative of moderately low concentrations of algae in the water column.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Clearwater Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
[6] Clearwater - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Clearwater Lake (Centre station). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Sampling has been conducted for 13 consecutive years on Clearwater Lake providing an excellent historical record of water quality. In general, suspended algal levels have been moderate ranging from 1.5 to 3.5 ug/L, and water clarity has been relatively high, ranging from 4.0 to 6.5 m as measured by Secchi disc. The data do not indicate any discernable changes in water quality with time but do indicate that Clearwater Lake has excellent water quality, and unenriched nutrient conditions.

**CLEMENT LAKE**

**MONMOUTH TOWNSHIP**

**COUNTY OF HALIBURTON**

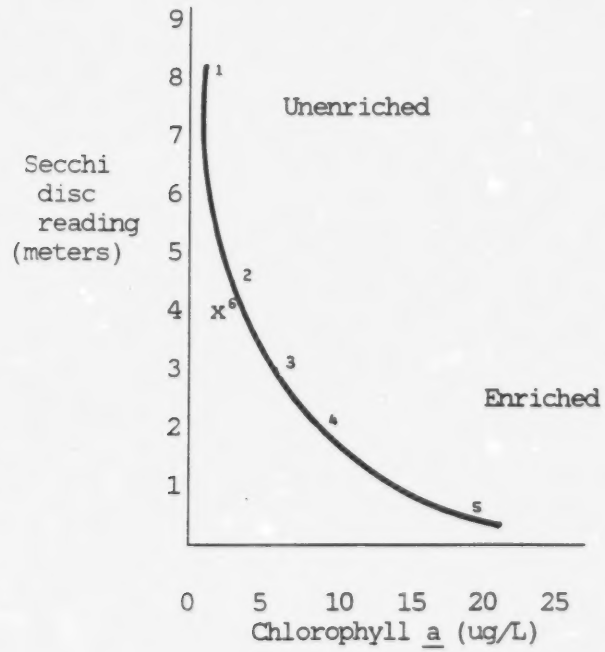
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Clement Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.a * |
| Jun 7 | 4.0 | 1.9 |
| Jun 21 | 4.0 | 1.7 |
| Jun 28 | 4.0 | 2.4 |
| Jul 25 | 5.0 | 1.7 |
| Aug 4 | 4.0 | 2.6 |
| Aug 16 | 3.0 | 1.6 |
| Aug 23 | 5.0 | 1.7 |
| | 4.1 | 1.9 |

* Not sampled over 2x the Secchi depth.

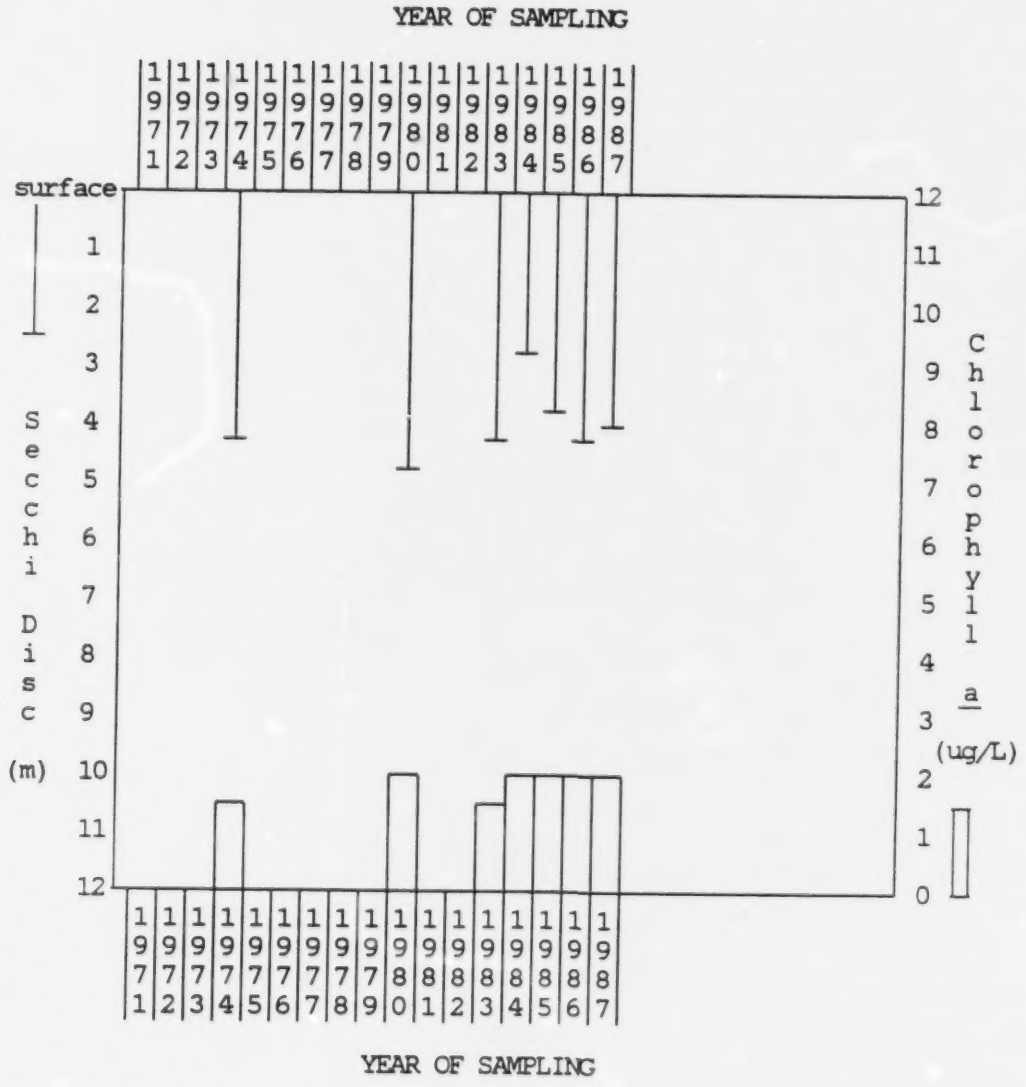
Sampling of Clement Lake was conducted on seven occasions in 1987 providing a very good seasonal coverage of water quality. However, water sampling for chlorophyll a concentrations was not, for the most part, conducted over 2x the Secchi depth and it is uncertain how representative the resulting concentrations are of densities over the whole depth of algal production. Based on the average chlorophyll a concentration of 1.9 ug/L and the average Secchi disc reading of 4.1 m, Clement Lake would be considered to be moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Clement Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Clement Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Clement Lake (Centre). Averages based on fewer than 4 points were considered unrelible and were not graphed.




Clement Lake has been sampled over seven summer seasons since 1974. Although some variability in water clarity (as indicated by Secchi depth) and algal densities (as indicated by chlorophyll a concentrations) have been observed, no trend in water quality is obvious. Except for one year the water has been moderately clear (Secchi disc averages between 3.5 and 5.0 m) and suspended algae densities have remained low (less than 2.0 ug/L). The water of Clement Lake would be considered to be moderately enriched with nutients.

CREGO LAKE

SOMERVILLE TOWNSHIP

VICTORIA COUNTY

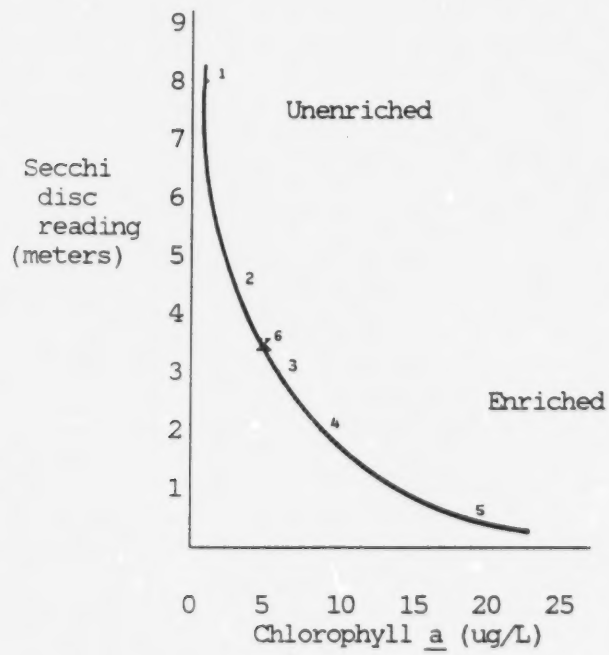
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Crego Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.a |
| May 7 | 3.5 | 5.4 |
| May 18 | 2.0 | 4.2 |
| Jun 20 | 4.0 | 1.8 |
| Jun 28 | 4.0 | 3.6 |
| Jul 5 | 3.5 | - * |
| Jul 19 | 4.0 | 7.4 |
| Jul 27 | 4.5 | 11.8 |
| Aug 16 | 3.0 | 4.3 |
| Aug 23 | 3.0 | 1.8 |
| Sep 7 | 4.0 | 2.3 |
| | 3.6 | 4.7 |

Sampling of Crego Lake was conducted on ten occasions in 1987 providing an excellent record of water quality for the summer season. Water clarity was moderately low (average = 3.6 m) while the average chlorophyll a concentration of 4.7 ug/L was relatively high. These data indicate that Crego Lake is an enriched lake subject to periodic algal blooms, as indicated by the chloropyll a concentration of 11.8 ug/L on July 27th.

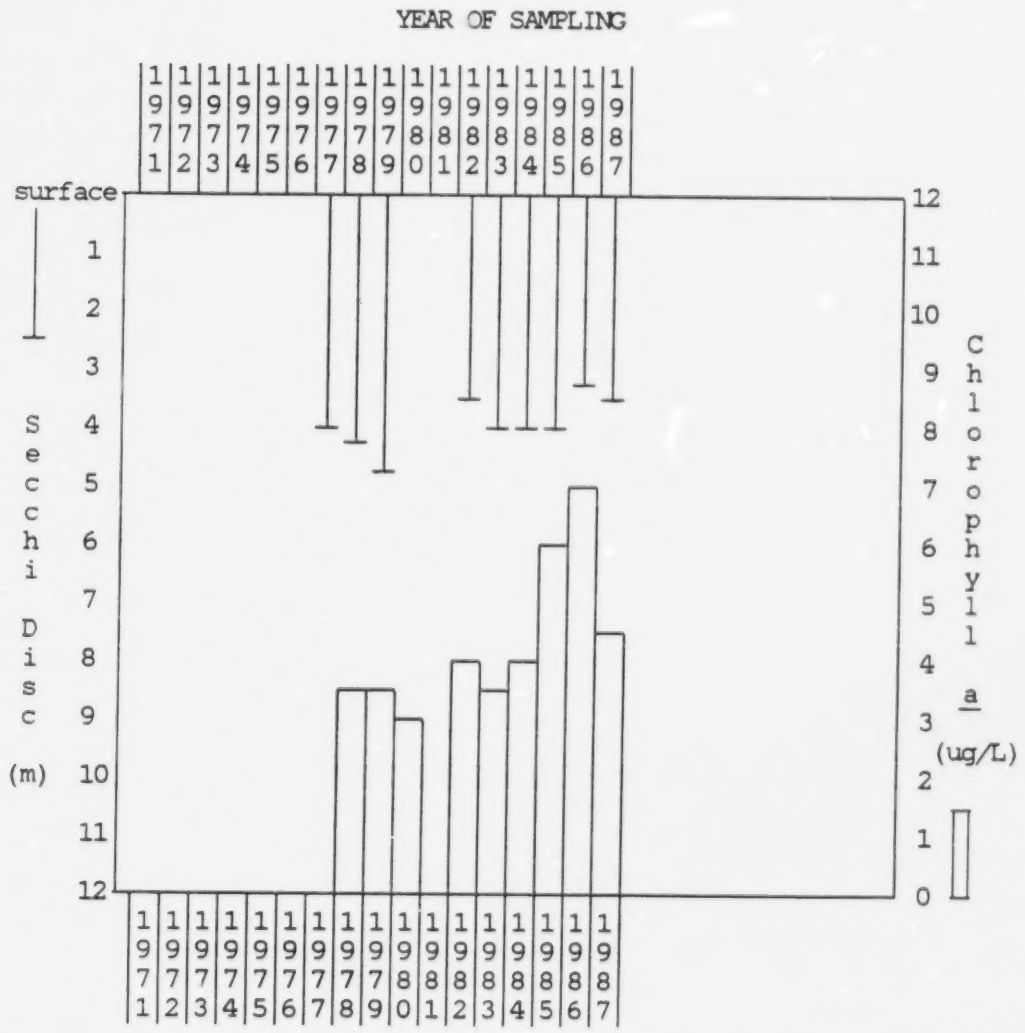
* Sample lost.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Crego Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Crego Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll *a* results for Crego Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Nine years data have been accumulated on Crego Lake since 1978. High average chlorophyll *a* concentrations (3 to 7 ug/L) and moderate water clarity (3.5 to 5.0 m) over the period of record are indicative of enriched conditions within the lake. Although chlorophyll *a* concentrations have been highest in the past three years, the data are too few to identify any definitive trend in water quality. Sampling in the next few years will be useful in assessing the importance of these recent high densities of suspended algae.

CRYSTAL LAKE

GALWAY TOWNSHIP

PETERBOROUGH COUNTY

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Crystal Lake in 1987.

| Station | Centre | | Clear Bay | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 14 | 6.0 | 2.7 | 5.0 | 3.3 |
| Jun 21 | 6.0 | 2.2 | 4.5 | 4.3 |
| Jul 5 | 5.25 | 2.8 | 4.75 | 6.3 |
| Jul 12 | 4.75 | 1.9 | 5.0 | 4.8 |
| Jul 19 | 4.0 | 2.5 | 4.0 | 2.4 |
| Jul 26 | 4.25 | 2.0 | 4.0 | 2.0 |
| Aug 9 | 4.0 | 2.3 | 4.0 | 2.3 |
| Aug 17 | 4.5 | 2.2 | 4.5 | 2.5 |
| Aug 23 | 4.25 | 1.6 | 4.0 | 1.8 |
| Aug 30 | 4.5 | 2.3 | 4.0 | 2.0 |
| | 4.8 | 2.3 | 4.4 | 3.2 |

Sampling was conducted on ten occasions in Crystal Lake in 1987 providing excellent documentation of water quality over the summer season. Water clarity was moderate as indicated by mean Secchi depths of 4.8 m (lake centre) and 4.4 m (Clear Bay). Chlorophyll a levels were indicative of moderate densities of suspended algae. Based on these data Crystal Lake is a moderately enriched lake with, possibly, a slightly greater degree of enrichment in Clear Bay than in the main body of the lake.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Crystal Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

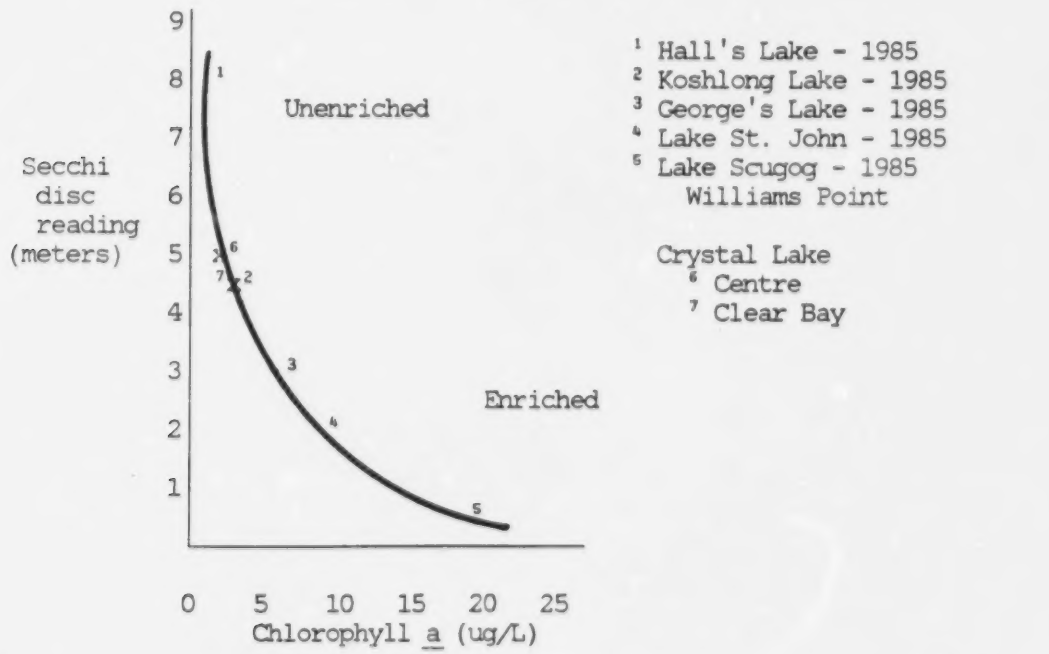


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Crystal Lake (Centre station). Averages based on fewer than 4 points were considered unreliable and were not graphed.

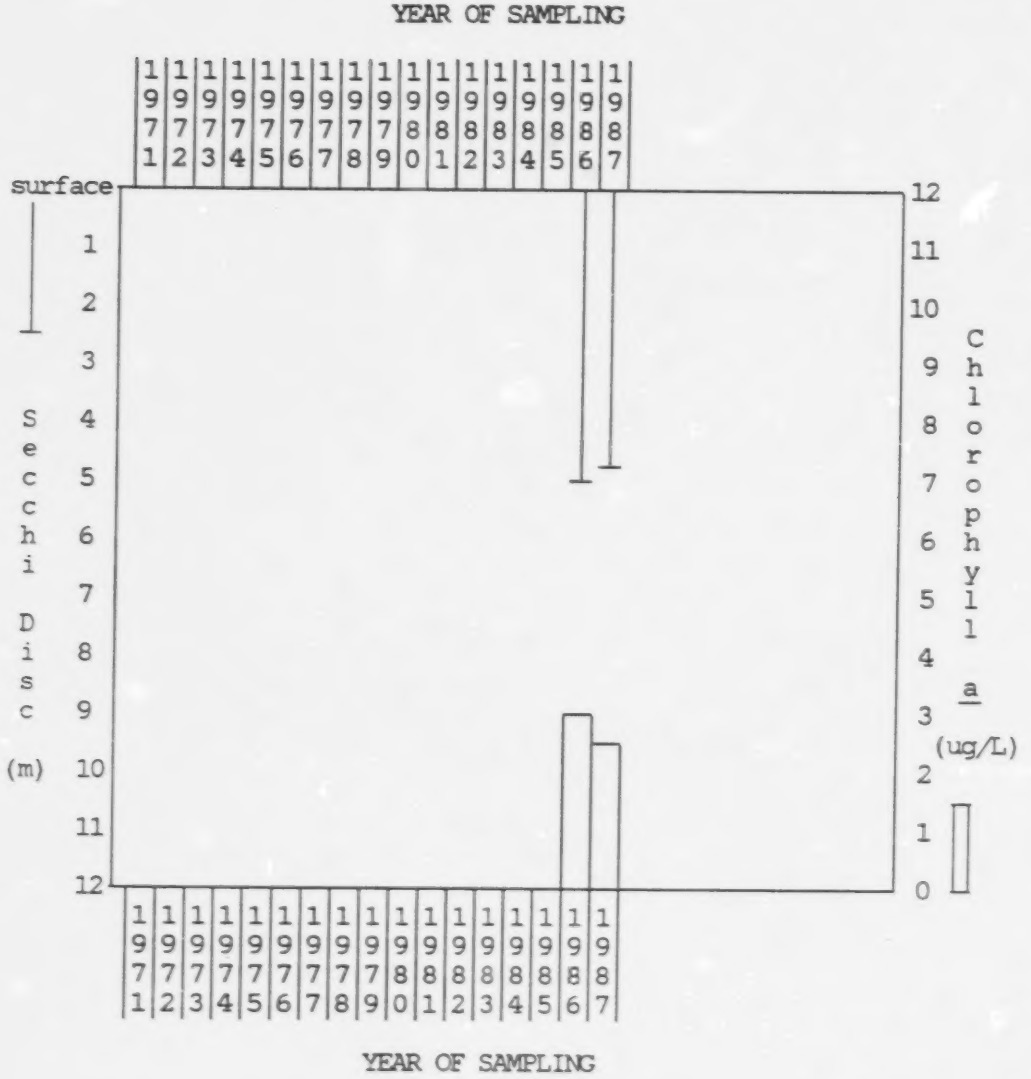
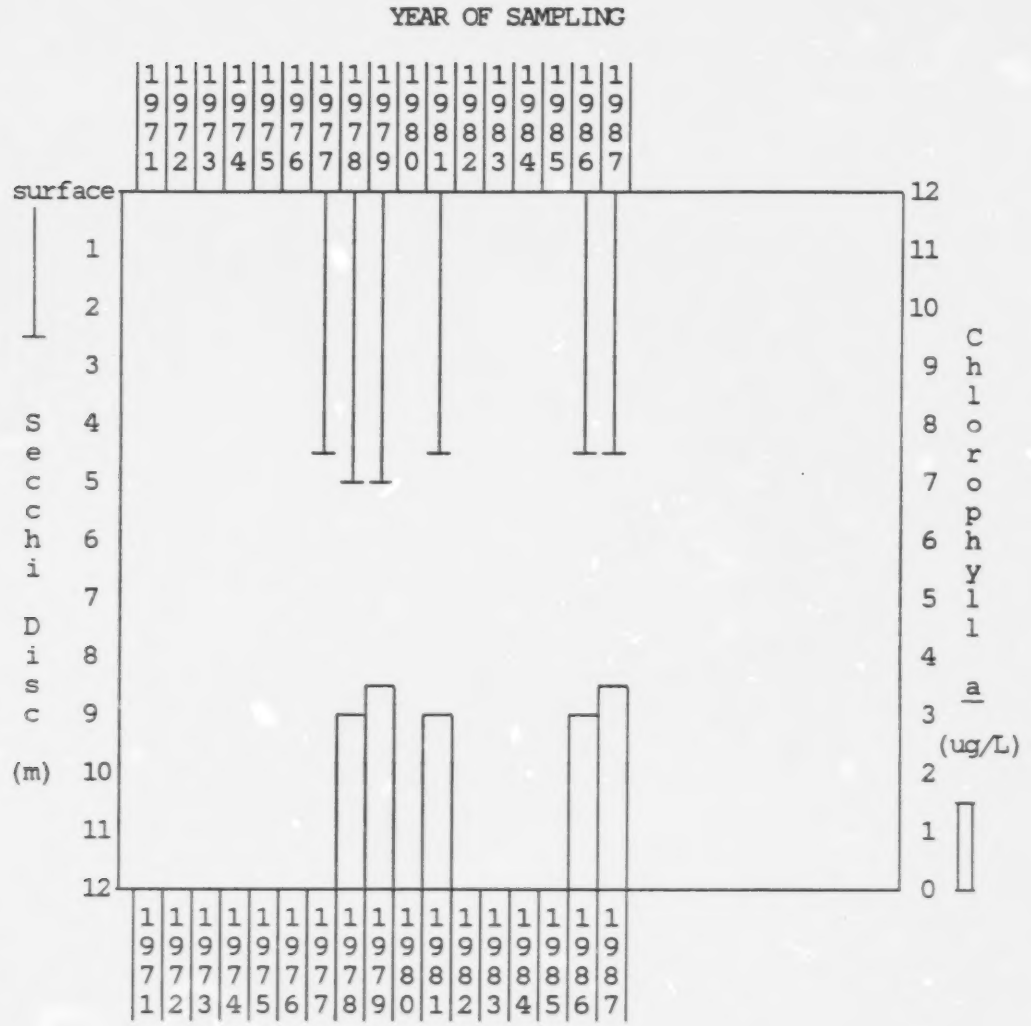


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Crystal Lake (Clear Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Sampling has now been conducted in Clear Bay over six summer seasons since 1977. Water quality, as indicated by chlorophyll a concentrations and Secchi depth readings, has not changed over the years; the lake is maintaining a moderately enriched status. Sampling on the main portion of the lake has been conducted on too few occasions to provide any definitive conclusions. However, it would appear that the waters of Clear Bay may be slightly more enriched with nutrients than the main body of the lake.

**DAVIS LAKE**

**LUTTERWORTH TOWNSHIP**

**HALIBURTON COUNTY**

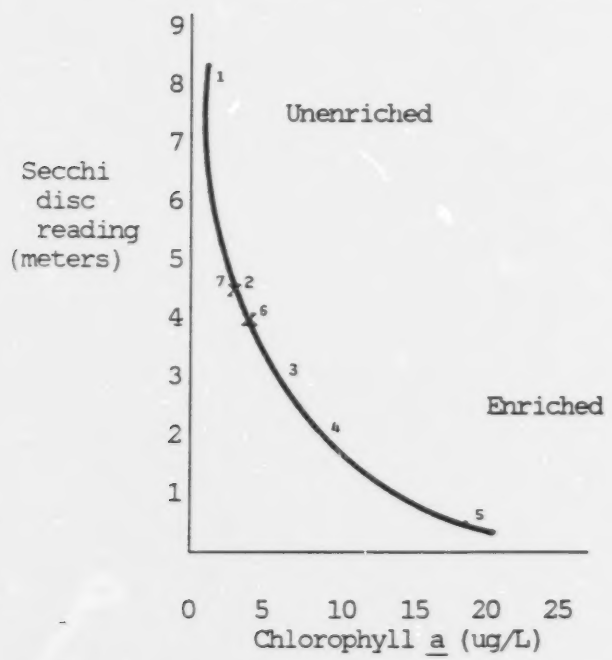
Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Davis Lake in 1987.

| Station | South | | Deep Bay off Island | |
|---|---|---|---|---|
| Date[1] | S.D. | Chl.*a* | S.D. | Chl.*a* |
| May 7 | 4.25 | 6.3 | - | - |
| May 14 | - | - | 5.0* | 3.9* |
| May 18 | 3.5 | 3.7 | - | - |
| May 24 | 3.5 | 2.7 | - | - |
| Jun 7 | 4.5 | 2.6 | - | - |
| Jun 14 | 4.5 | 5.4 | - | - |
| Jun 21 | 4.0 | 6.5 | - | - |
| Jul 5 | - | - | 4.5* | 5.7* |
| Jul 12 | 3.75 | 3.8 | - | - |
| Jul 26 | 4.25 | 2.8 | - | - |
| Aug 16 | - | - | 4.5* | 2.2* |
| Aug 23 | - | - | 4.5* | 2.4* |
| Aug 30 | 4.25 | 1.8 | - | - |
| | 4.1 | 4.0 | 4.6 | 3.6 |

For text, see attached page.

* Average of two results.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Davis Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.



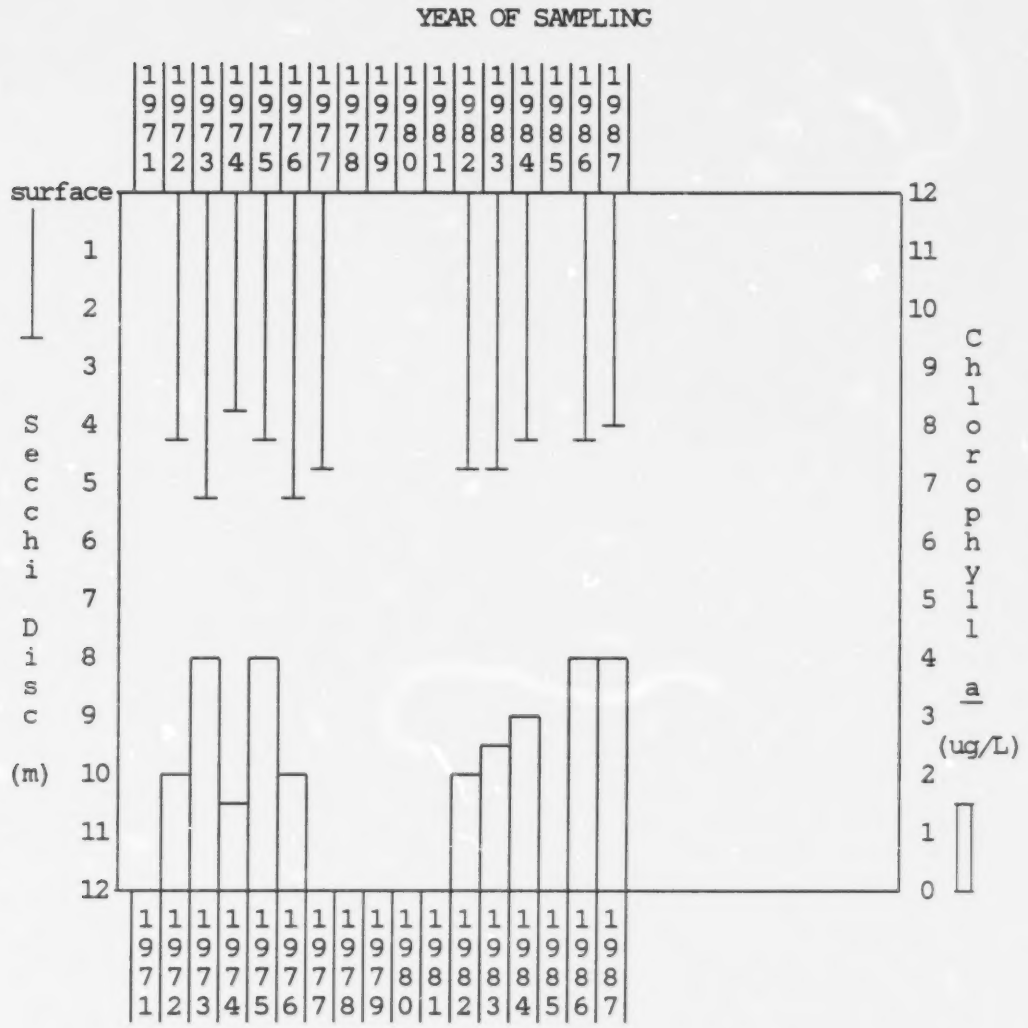

[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point

Davis Lake - 1987
[6] South
[7] Deep Bay

In 1987 an excellent sampling program at the South station provided water quality data for nine different dates over the summer season. The data from the Deep Bay off the Island would be more useful had sampling been conducted on at least two more occasions.

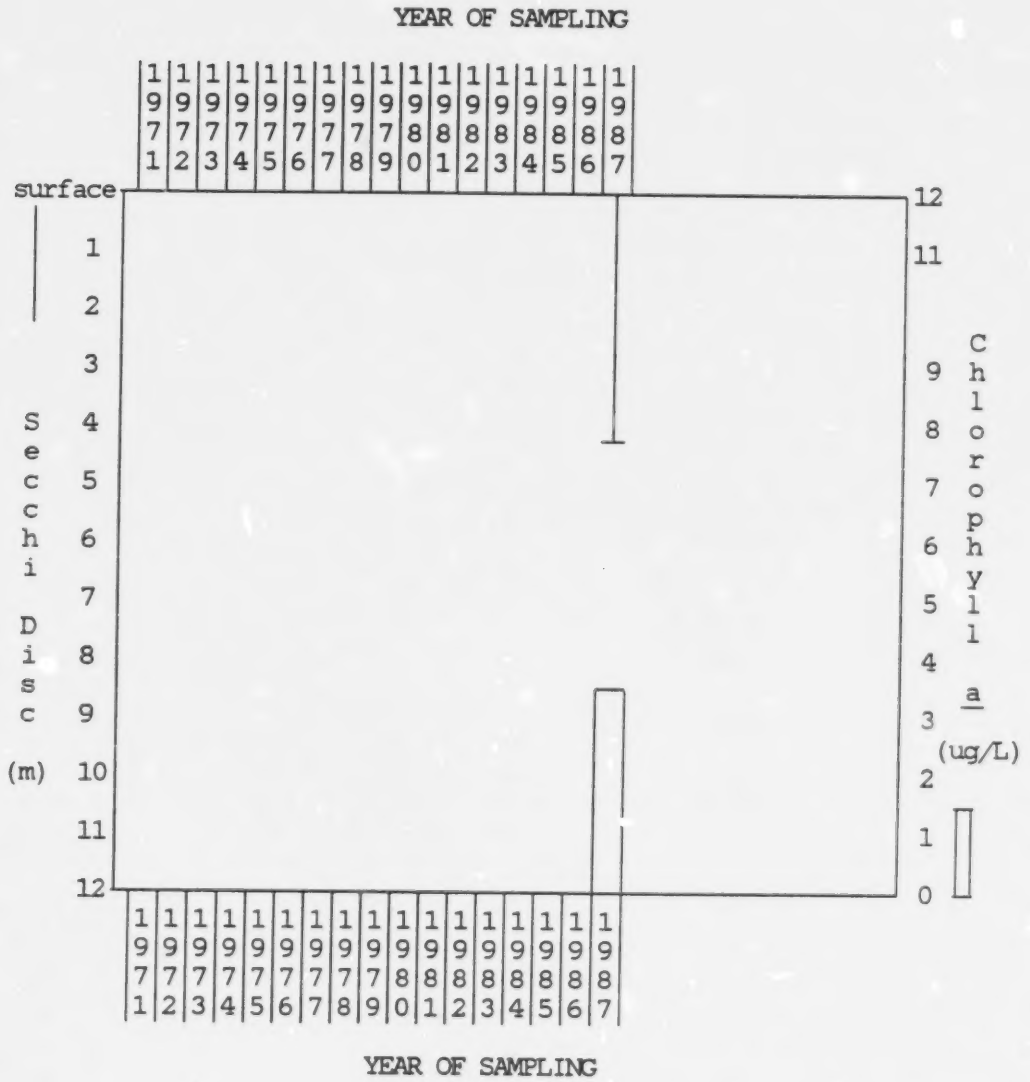
Water clarity at both stations was moderately high with Secchi disc readings ranging from 3.5 to 5.0 m. Chlorophyll a concentrations were also moderately high averaging 4.0 ug/L at the South station and 3.6 ug/L at the Deep Bay off the Island. These data indicate that the water of Davis Lake was moderately enriched in 1987.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Davis Lake (South station). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Water quality data have been collected during eleven summers since 1972 for Davis Lake. Although chlorophyll a data have been somewhat variable there is no indication of any long-term trend in water quality. Davis Lake is maintaining a status of moderate nutrient enrichment.

Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Davis Lake (Deep Bay off Island). Averages based on fewer than 4 points were considered unreliable and were not graphed.



**DENNA LAKE**

**LUTTERWORTH TOWNSHIP**

**COUNTY OF HALIBURTON**

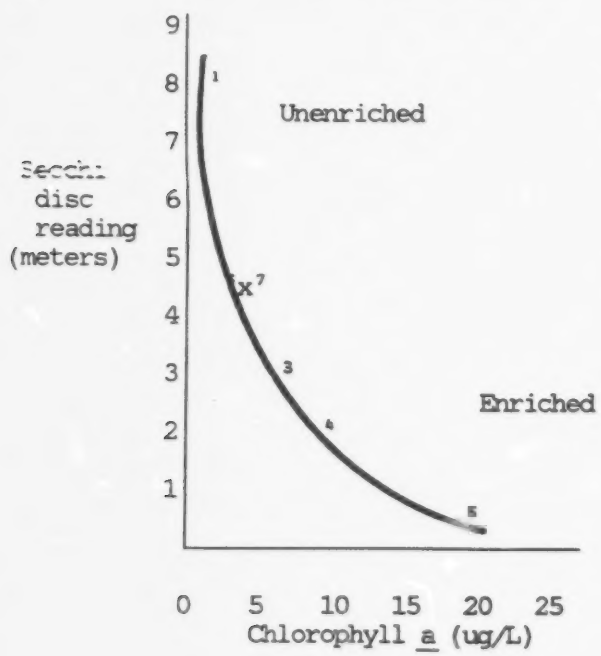
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Denna Lake in 1987.

| Station | Centre | | North | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 14 | 4.0 | 6.3 | 4.0 | 4.4 |
| Jun 28 | 3.5 | 5.3 | 4.5 | 6.1 |
| Jul 5 | 5.0 | 4.6 | 5.0 | 5.8 |
| Jul 12 | 5.0 | 3.6 | 5.0 | 4.0 |
| Jul 23 | 4.0 | 3.8 | 4.0 | 3.1 |
| Jul 26 | 5.0 | 4.4 | 5.0 | 5.0 |
| Aug 2 | 4.0 | 5.3 | 4.0 | 5.2 |
| Aug 16 | 4.0 | 4.6 | 4.0 | 4.2 |
| Sep 7 | 4.0 | 3.4 | 3.5 | L.A. |
| | 4.3 | 4.6 | 4.3 | 4.7 |

L.A. = Laboratory Accident - sample lost.

The sampling conducted at 2 locations on Denna Lake provided an excellent record of water quality for the 1987 summer season. Mean Secchi depths and mean chlorophyll a concentrations were practically identical at the 2 stations and were indicative of moderately clear water and moderately high suspended algae concentrations. Based on these data Denna Lake would be considered intermediate between being moderately enriched and enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Denna Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point

Denna Lake - 1987
[6] Centre
[7] North

Figure 2 : Historical reord of average Secchi disc and chlorophyll a results for Denna Lake (Central station). Averages based on fewer than 4 points were considered unreliable and were not graphed.

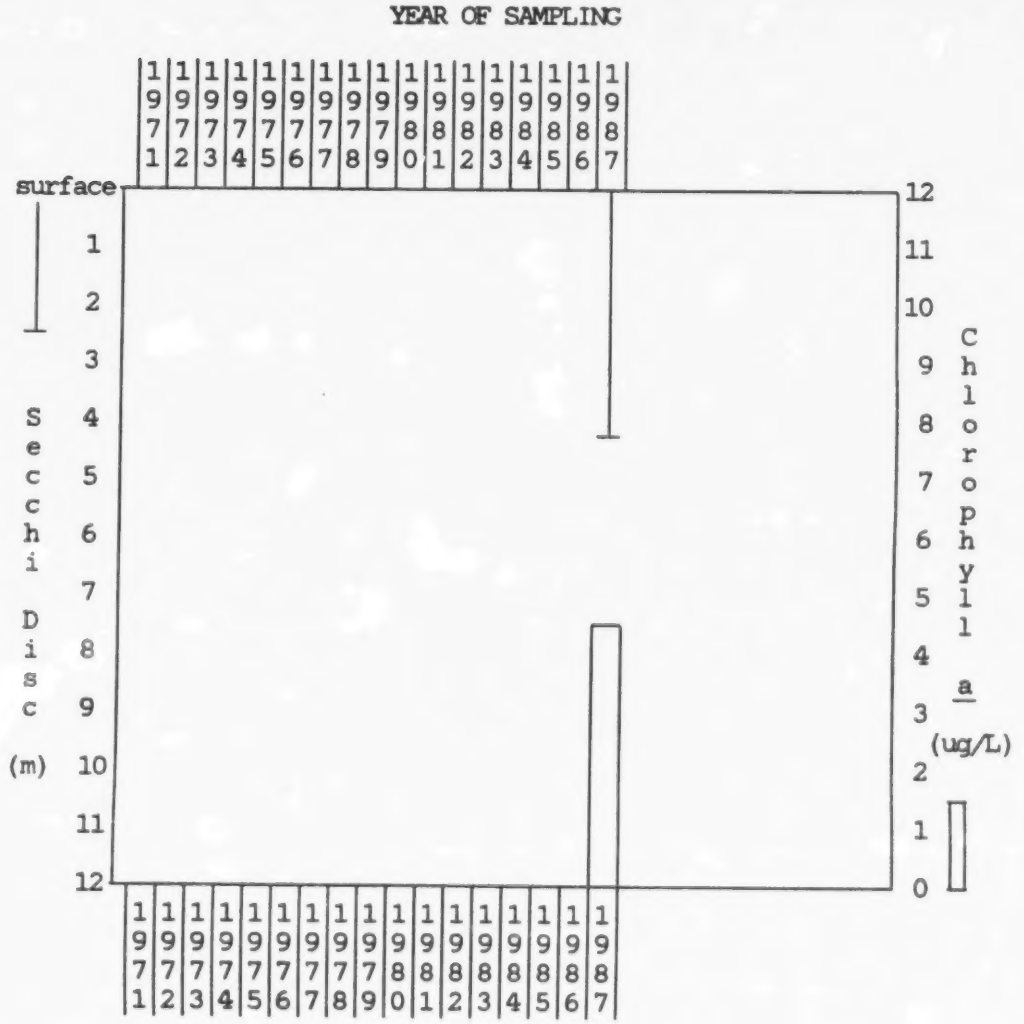
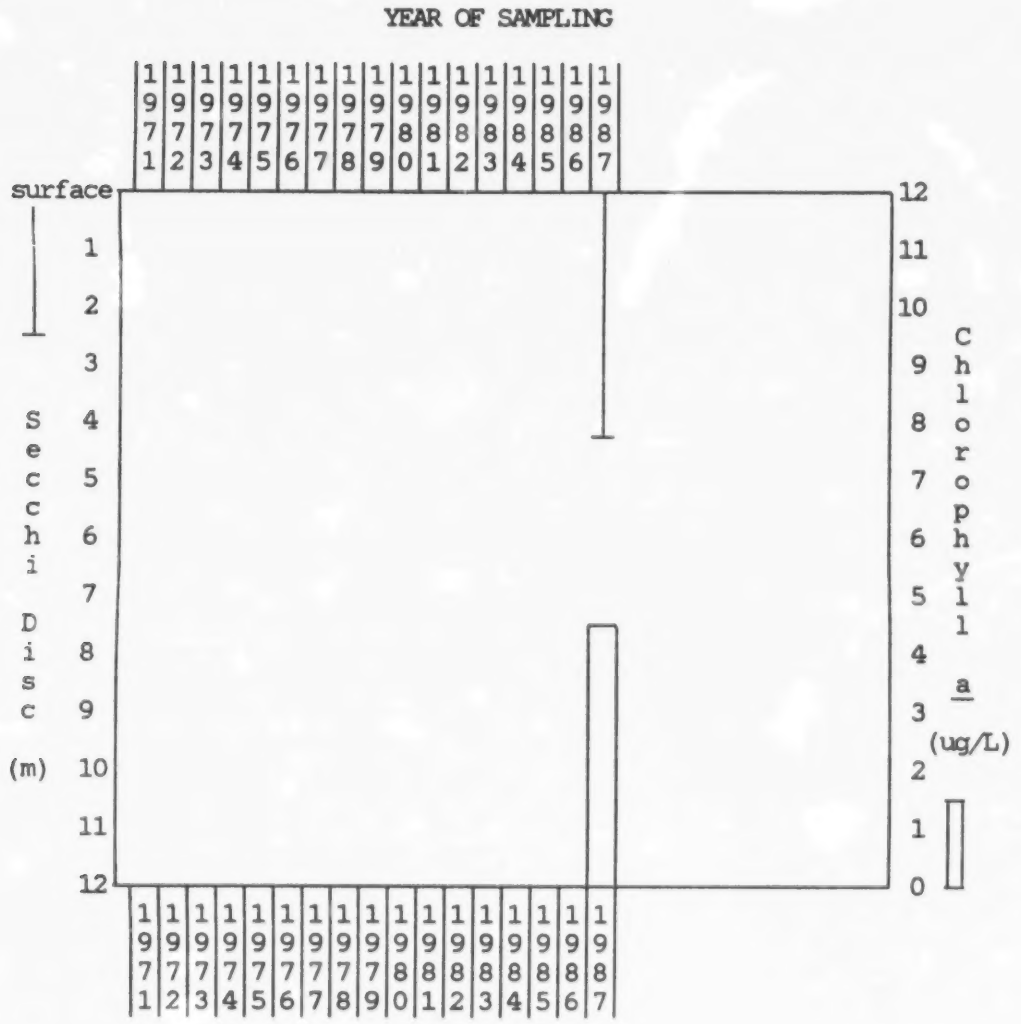


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Denna Lake (North station). Averages based on fewer than 4 points were considered to be unreliable and were not graphed.




Denna Lake was sampled on the Self-Help program for the first time in 1987. Therefore it is impossible to describe any trends in water quality with time. We hope that sampling continues on Denna Lake in the future to establish a long-term record of water quality.

**DEVILS LAKE**

**LUTTERWORTH TOWNSHIP**

**HALIBURTON COUNTY**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Devils Lake in 1987.

| Station | North | | South | | |
|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | |
| Jul 5 | 3.0 | 4.5 | 3.25 | 4.9 | |
| Jul 12 | 4.0 | -* | 4.5 | -* | * samples lost |
| Jul 19 | 3.0 | 4.1 | 3.0 | 4.1 | |
| Jul 26 | 3.5 | 4.2 | 4.0 | 4.5 | |
| Aug 9 | 3.5 | 5.4 | 3.5 | 5.0 | |
| Aug 15 | 3.5 | 4.4 | 4.0 | 7.4 | |
| | 3.4 | 4.5 | 3.7 | 5.2 | |

Based on the 1987 summer sampling results, Devils Lake is considered to be relatively enriched. Water clarity was moderate with Secchi disc readings varying between 3.0 and 4.5 m. Chlorophyll a concentrations varied between 4.1 and 7.4 ug/L indicating that densities of suspended algae were relatively high. The data are too few to identify any significant differences between the 2 stations.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Devils Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

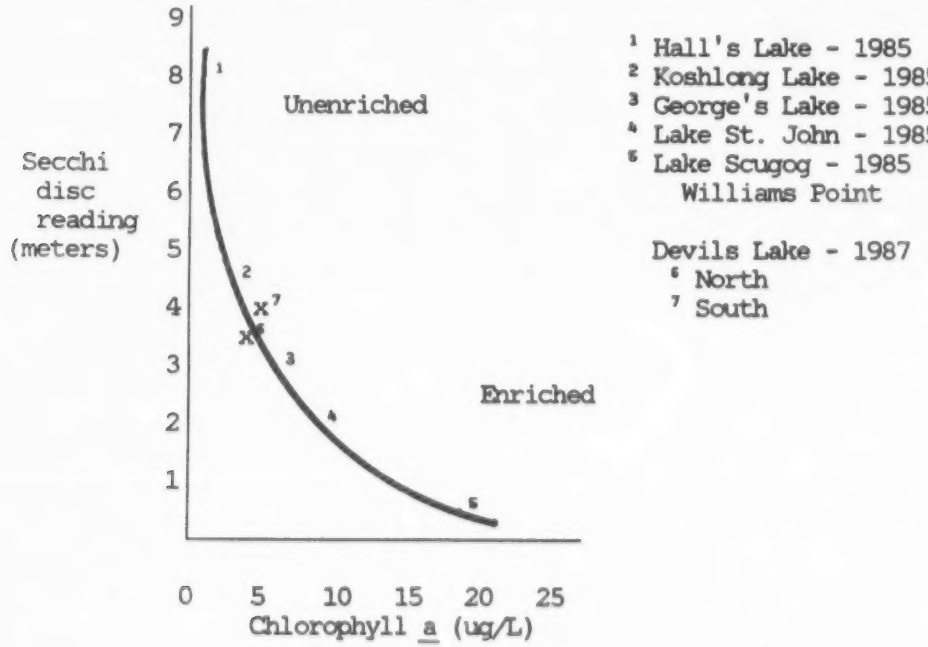


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Devils Lake (North station). Averages based on fewer than 4 points were considered unreliable and were not graphed.

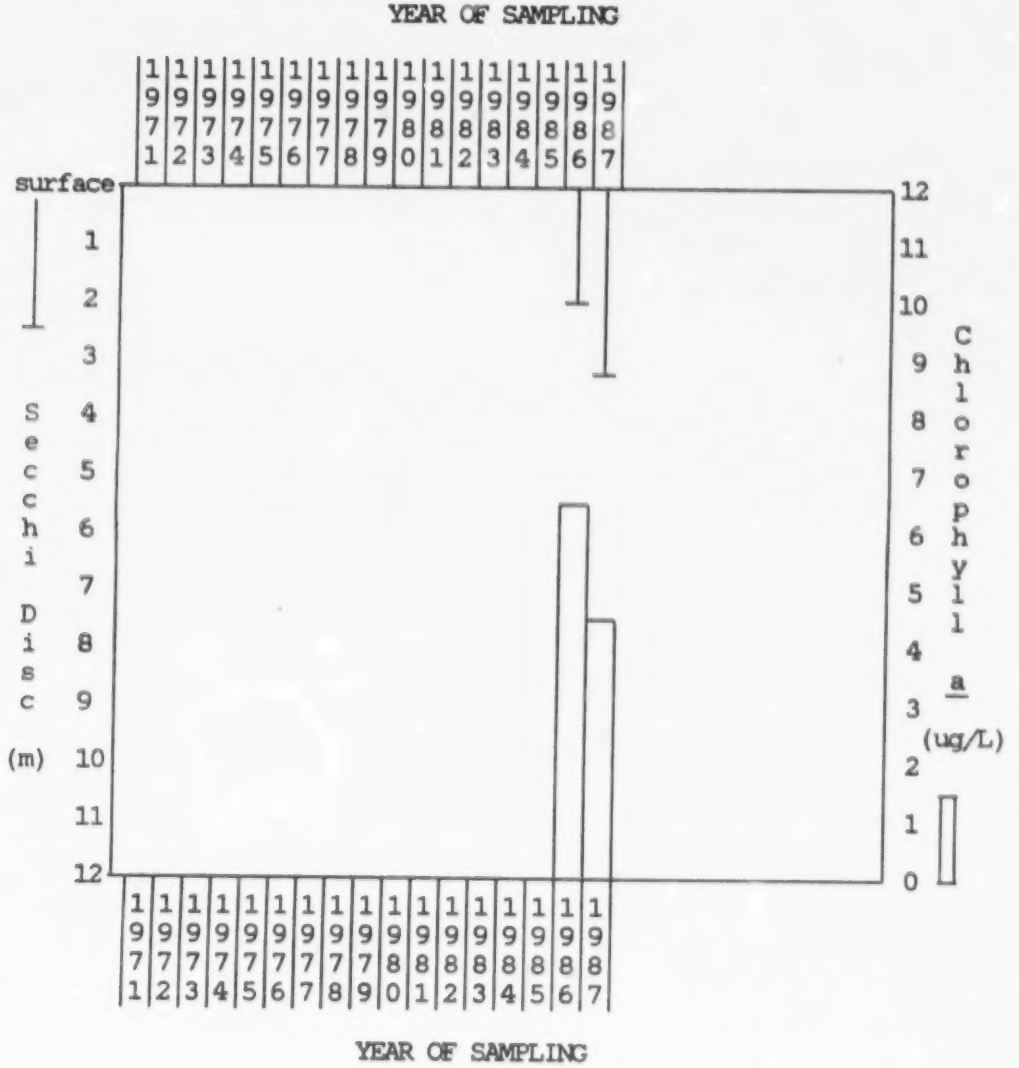
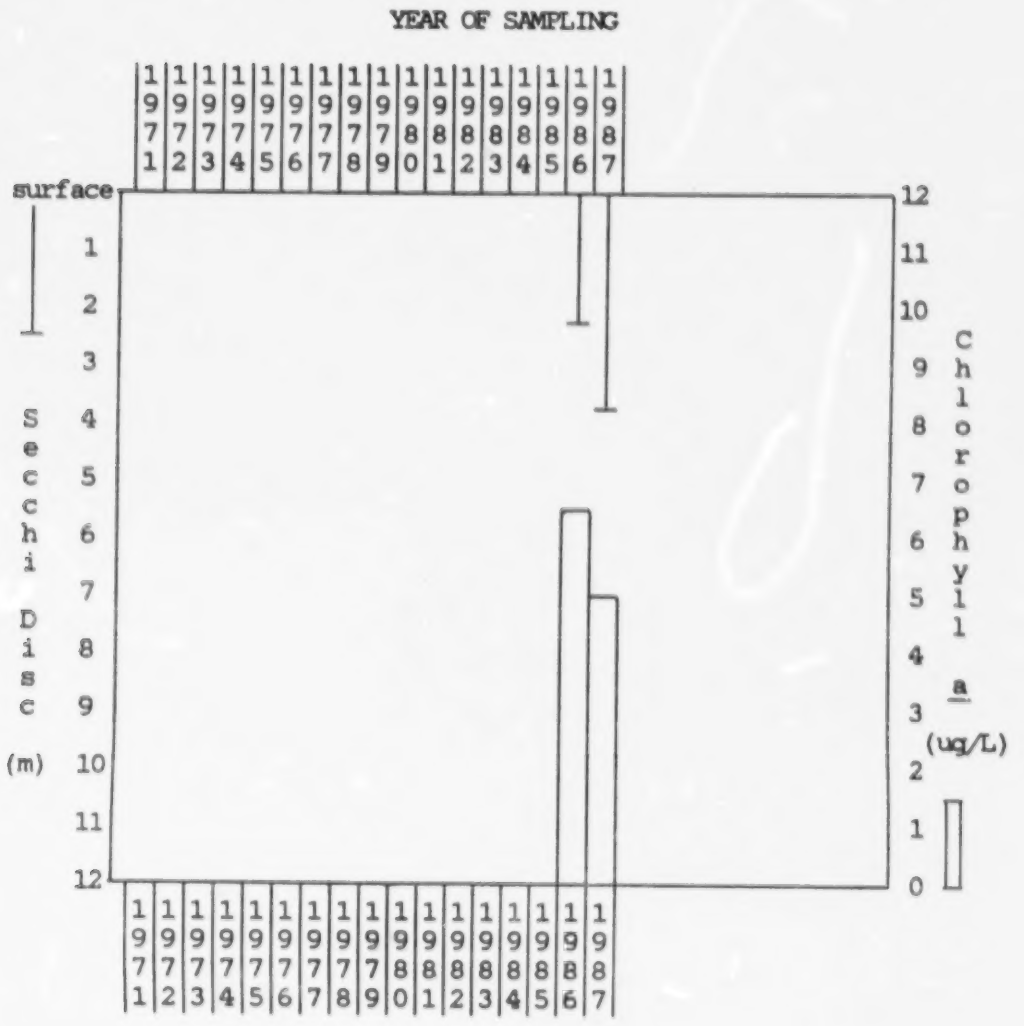


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Devils Lake (South station). Averages based on fewer than 4 points were considered unreliable and were not graphed.




1987 was the second year of sampling of Devils Lake for the Self-Help program. In both years the chlorophyll a and Secchi disc results were indicative of enriched conditions. Water quality was similar at the North and South stations. We hope that sampling continues in future years to enable identification of any long-term trends in water quality.

**DOESKIN (DOE) LAKE**

**MUSKOKA WARD**
**TOWN OF GRAVENHURST**

**DISTRICT MUNICIPALITY OF MUSKOKA**

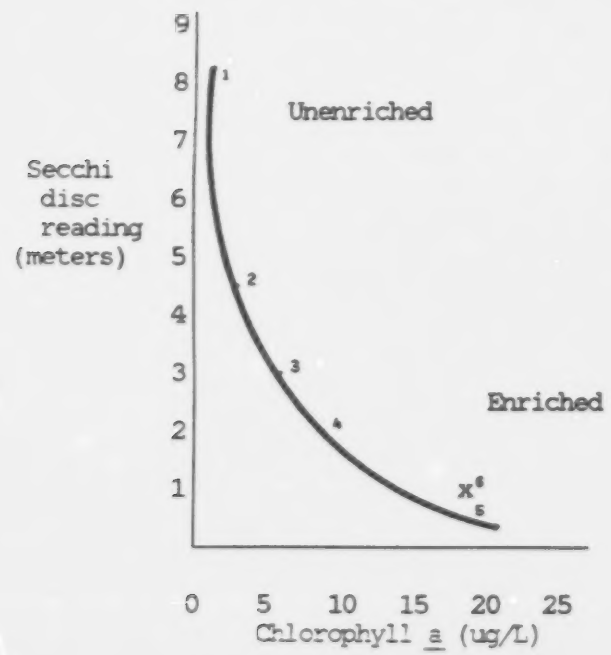
Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Doeskin Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.*a* |
| Jul 19 | 1.5 | 5.8 |
| Jul 26 | 1.5 | 2.7 |
| Aug 5 | - | 6.8 |
| Aug 16 | 0.75 | 59.8 |
| Aug 23 | 1.0 | L.A. |
| | 1.2 | 18.8 |

L.A. = Laboratory Accident

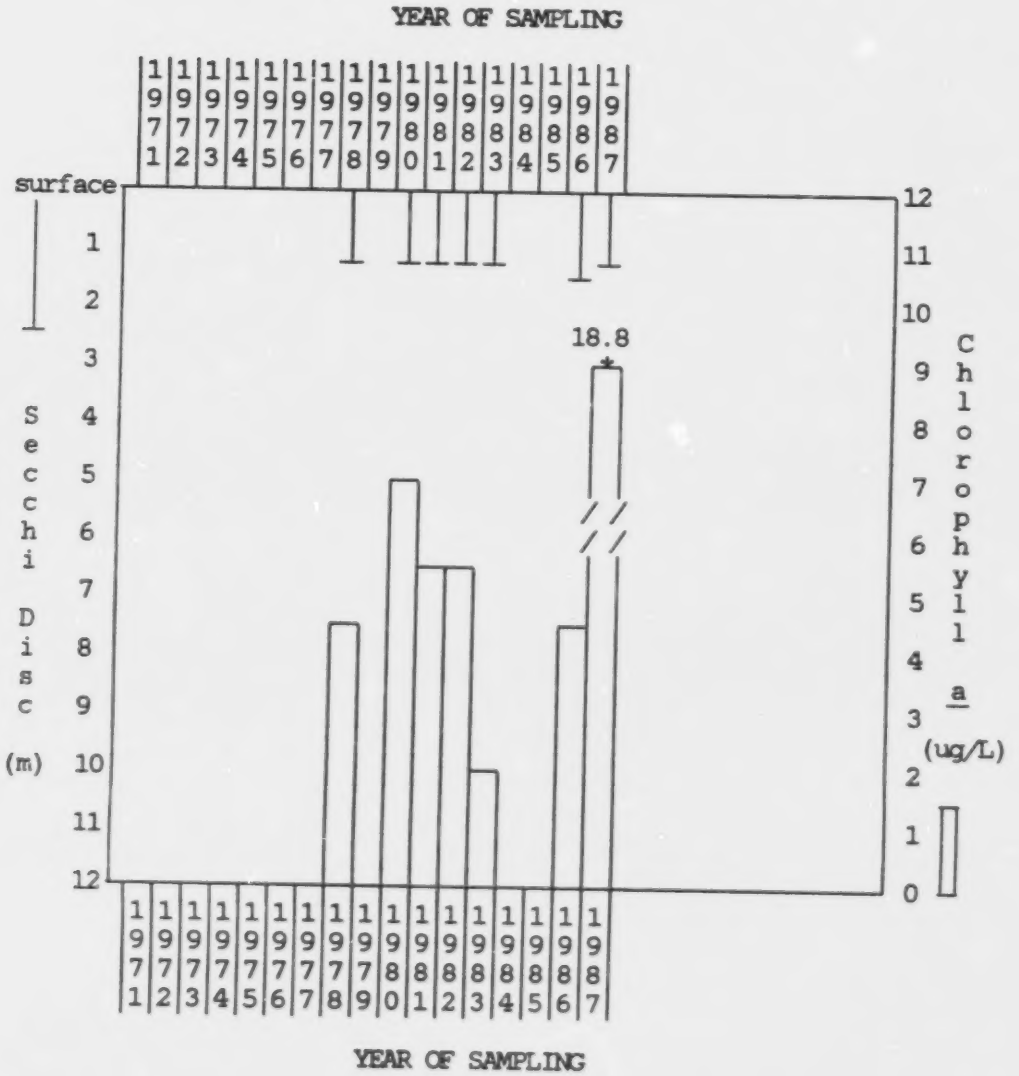
Although too few data were obtained for Doeskin Lake in 1987 to provide meaningful chlorophyll *a* and Secchi depth averages, it is clear that the lake is nutrient enriched. Low water clarity (Secchi disc values from 0.75 to 1.5 m) and widely varying densities of suspended algae (chlorophyll *a* concentrations from 2.7 to 59.8 ug/L) are indicative of an enriched lake subject to algal blooms. Sampling frequency should be increased to at least 6 times over the summer to provide more reliable data.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Doeskin Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
[6] Doeskin Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Doeskin Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




* Chlorophyll a average was off the scale of the graph.

With the possible exception of 1983, Doeskin Lake has consistently exhibited enriched water quality conditions over the years. This is indicated by low water transparency and high or widely varying chlorophyll a concentrations. The relatively low chlorophyll a value in 1983 is an anormaly.

DRAG LAKE

DUDLEY & DYSART TWPS.

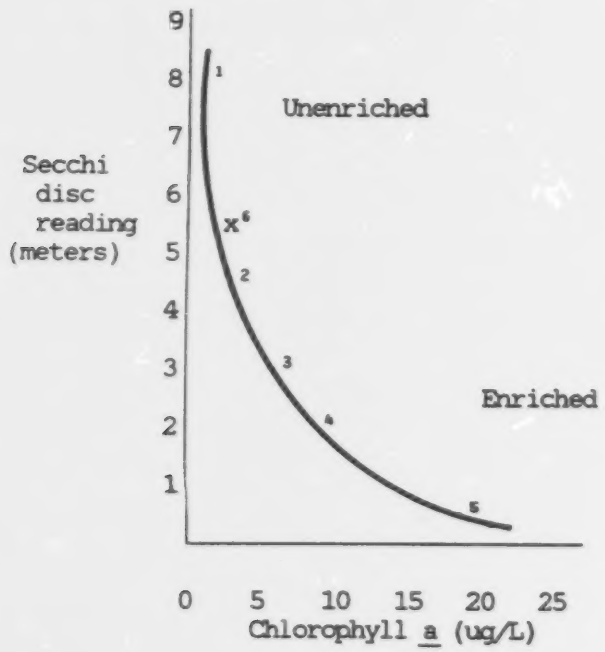
COUNTY OF HALIBURTON

Table 1: Secchi disc (m) and chlorophyll a (ug/L) data collected from Drag Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jul 12 | 5.5 | 2.7 |
| Jul 26 | 6.0 | 2.9 |
| Aug 16 | 5.5 | 2.1 |
| Aug 23 | 6.0 | 2.3 |
| Sep 7 | 5.5 | 2.4 |
| | 5.7 | 2.5 |

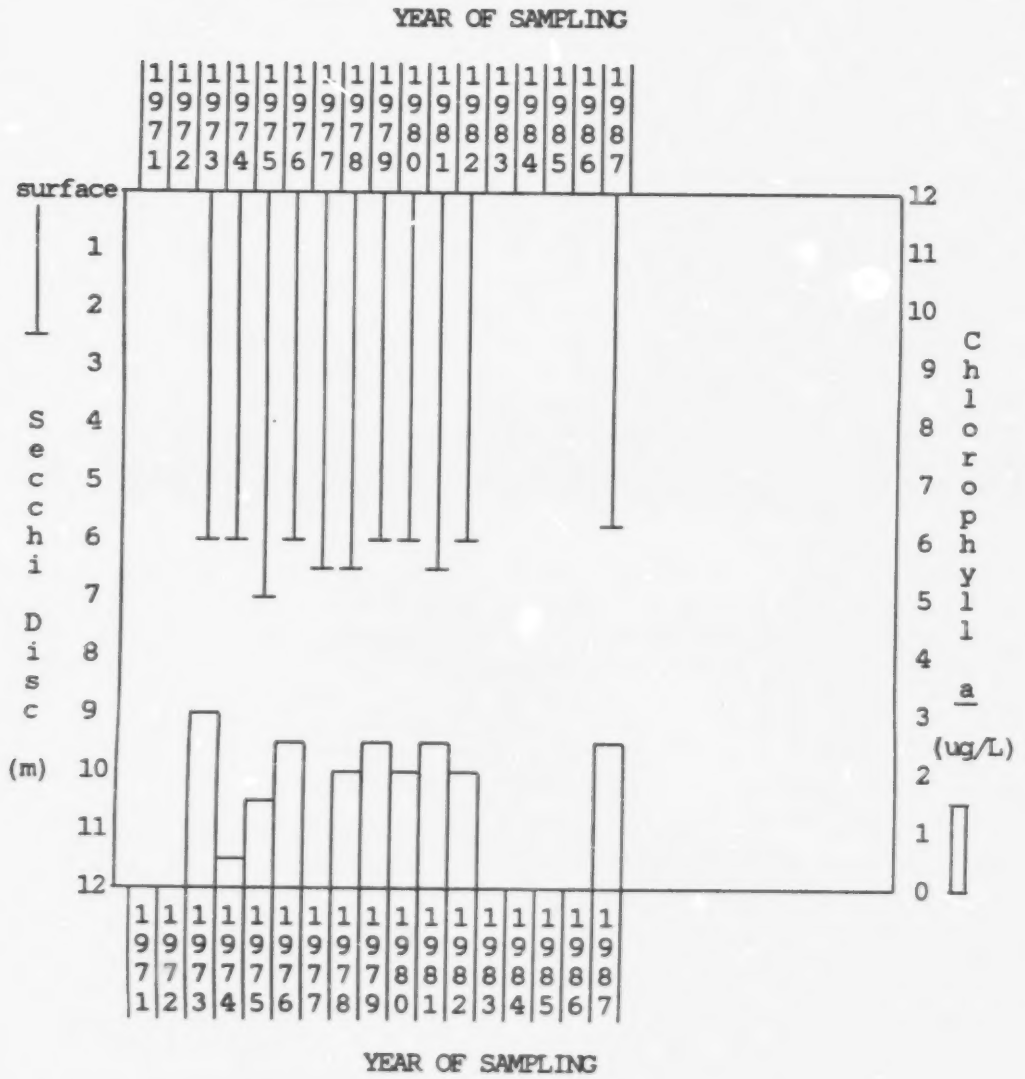
Water quality data collected from Drag Lake in 1987 were indicative of clear water (mean Secchi depth reading of 5.7 m) and moderately low concentrations of suspended algae (mean chlorophyll a concentration of 2.5 ug/L). On the basis of these results Drag Lake would be considered to be borderline between being moderately enriched and unenriched. In the future, sampling should be conducted more frequently (minimum of 6 occasions over the summer) to obtain reliable seasonal averages.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Drag Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Drag Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Drag Lake (Main station). Averages based on fewer than 4 points were considered unreliable and were not graphed.




The water quality of Drag Lake has remained consistently good over the years, typical of relatively unenriched conditions.

**FARLAIN LAKE**

**TINY TOWNSHIP**

**COUNTY OF SIMCOE**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Farlain Lake in 1987.

| Station | North | | South | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 4 | - | 2.3 | - | 2.5 |
| Jun 19 | - | 3.2** | - | - |
| Jul 9 | 4.3* | 1.9 | 3.7* | 1.8 |
| Jul 24 | 4.9* | 1.1 | 4.3* | 1.2 |
| Aug 5 | 4.3* | 2.4 | 3.7* | 2.5 |
| Aug 18 | - | - | 6.0 | 2.5 |
| Aug 27 | 5.0 | 2.2 | 3.0 | 2.3 |
| | N/A | 2.2 | N/A | 2.1 |

* Bottom depth
** Unknown sampling location

Because of the shallowness of the sampling location on Farlain Lake and the inability to obtain Secchi disc readings on many occasions, it is difficult to interpret the water clarity data. However, it would appear that the water is relatively clear with a Secchi disc average which exceeds 4.5 m. Suspended algal concentrations are relatively low averaging just over 2 ug/L at the 2 stations. On the basis of these data it would appear that Farlain Lake is moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Farlain Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

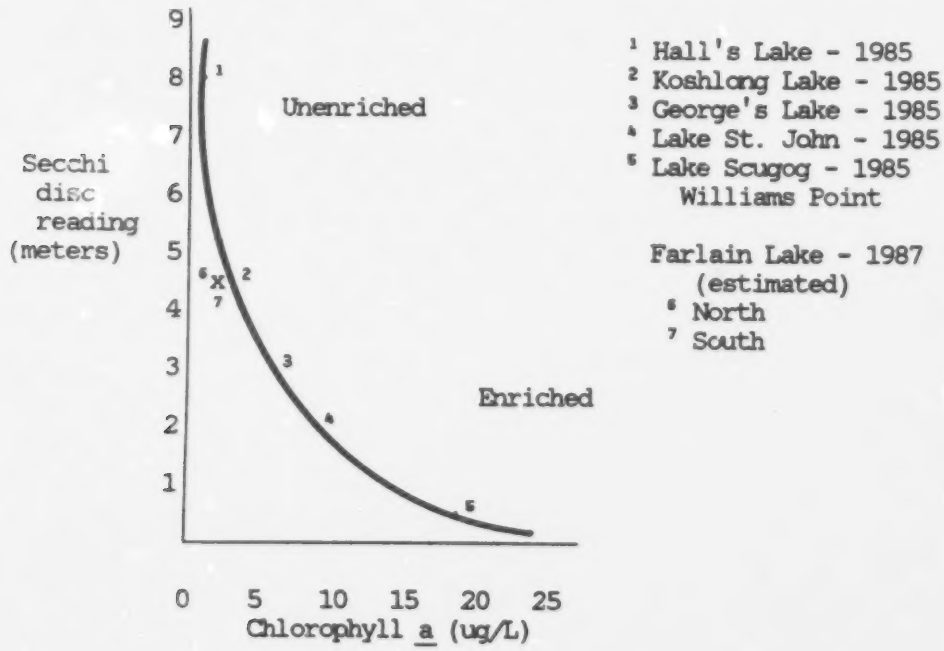
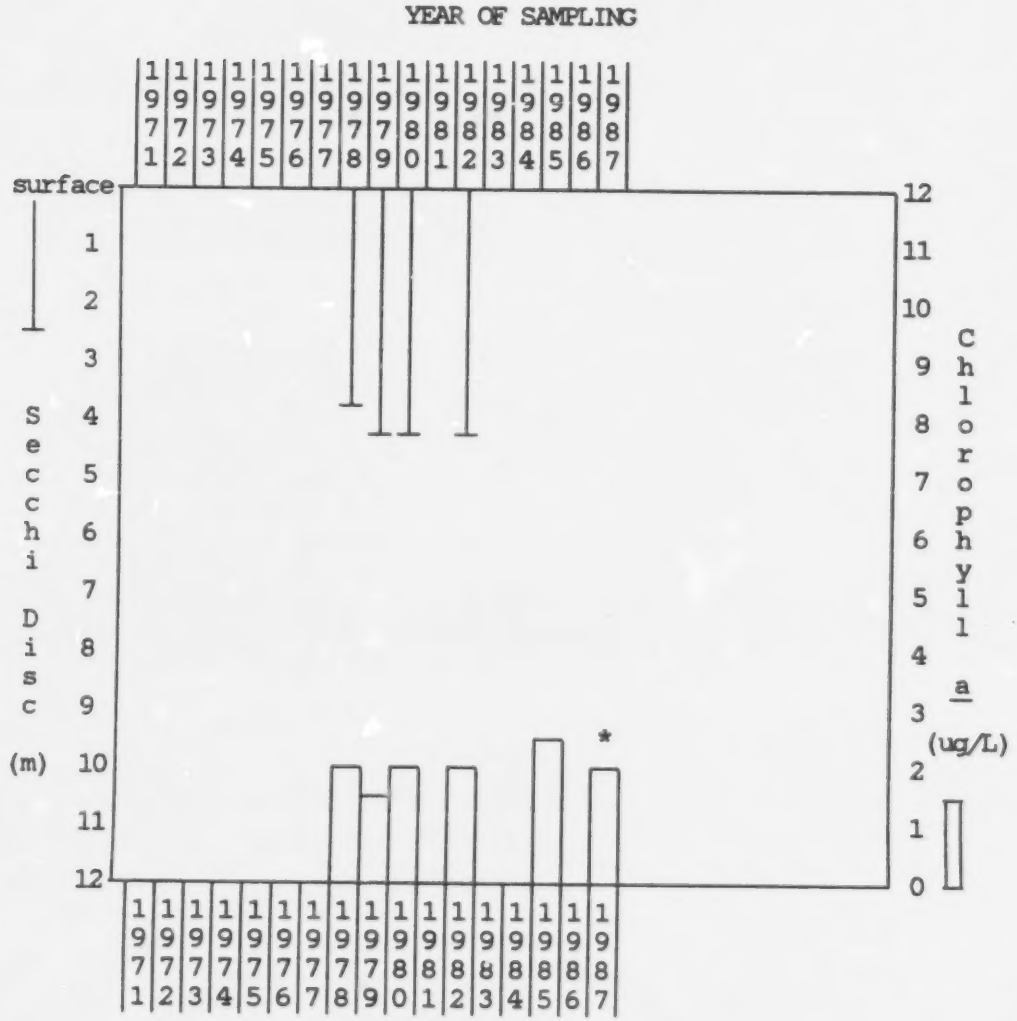


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Farlain Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




* North and South stations

The shallowness of Farlain Lake precludes a good estimate of water transparency but it would appear that water quality is relatively good based on the low chlorophyll a averages. No changes in water quality are apparent over the period of record.

**FOUR MILE LAKE**

**SOMERVILLE TOWNSHIP**

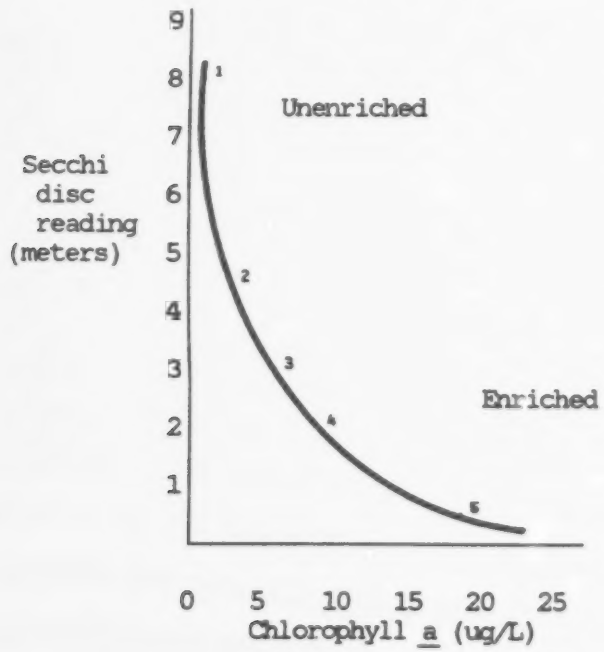
**COUNTY OF VICTORIA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Four Mile Lake in 1987.

| Station | North | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 28 | 5.5 | 1.6 |

Not enough data were collected in 1987 to draw any conclusions about the nutrient status of Four Mile Lake. Samples must be taken on a minimum of six occasions over the summer season to provide an adequate data base on which to base a reliable interpretation.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Four Mile Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point

Four Mile Lake - 1987
(insufficient data to plot)

FOX LAKE

STISTED WARD
TOWN OF HUNTSVILLE

DISTRICT MUNICIPALITY OF
MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Fox Lake in 1987.

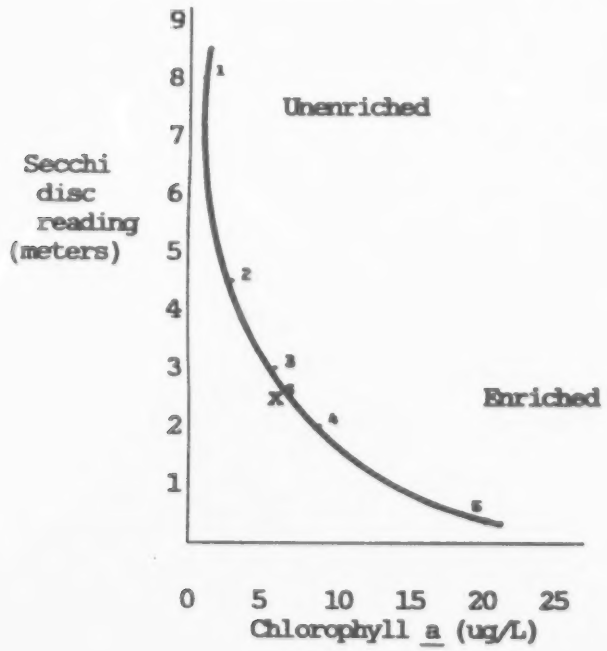
Station Various*

| Date | S.D. | Chl.a |
|---|---|---|
| Jun 7 | 2.25 | 3.5** |
| Jun 21 | 2.0 | 3.9 |
| Jul 5 | 3.5 | 2.7** |
| Jul 26 | 2.0 | 6.3** |
| Aug 16 | 2.0 | 4.9 |
| Aug 31 | 2.0 | 4.9 |
| Sep 13 | 2.0 | 12.9*** |
| | 2.3 | 5.6 |

It is uncertain how much confidence to place in the data collected in 1987 because of variable sampling locations and chlorophyll a sampling that was not conducted over 2x the Secchi depth. It would appear that water clarity is relatively low while suspended algal concentrations are fairly high. This would indicate that Fox Lake is enriched in terms of its nutrient status. Future sampling should be conducted at one lake station (deepest point) and chlorophyll samples should be taken over a depth of 2x the Secchi disk reading.

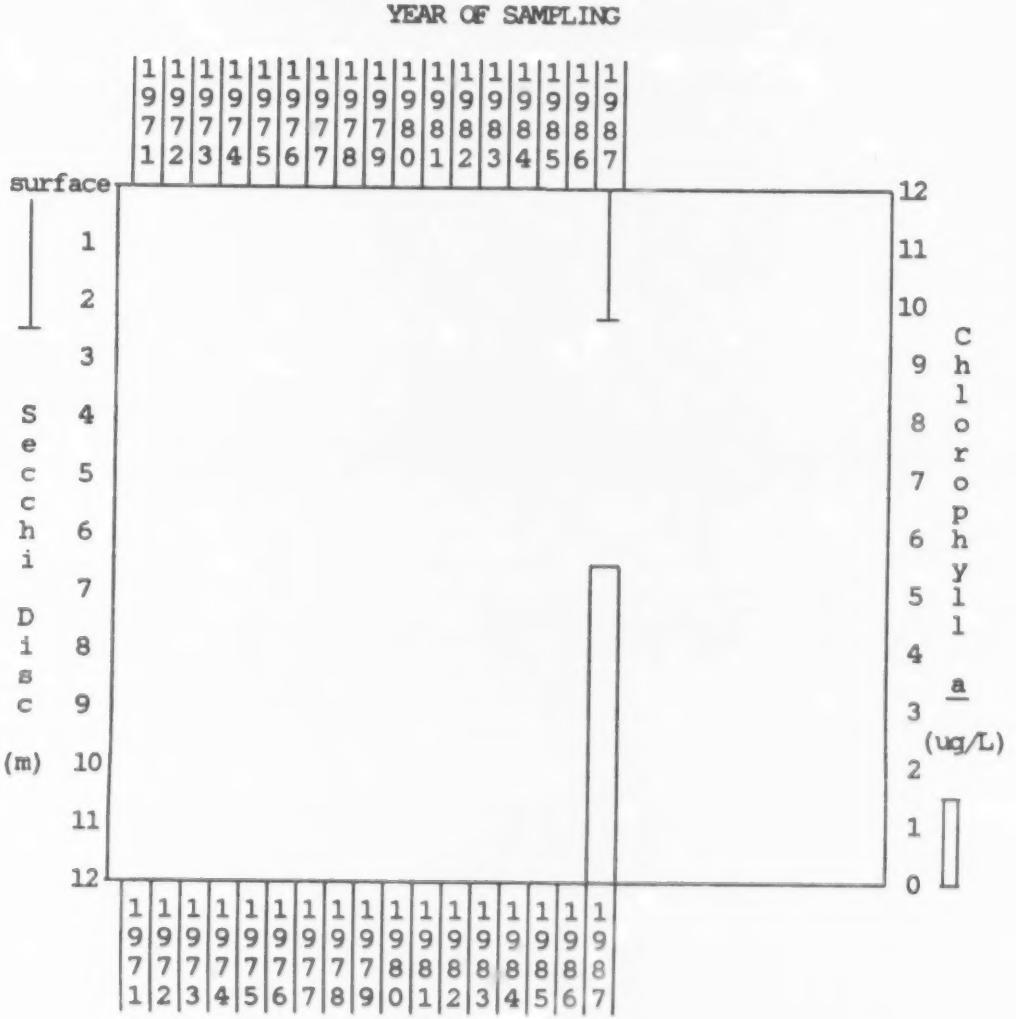
* Sampling was conducted at various locations.
** Not sampled over 2x the Secchi depth.
*** Unreliable lab result.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Fox Lake in 1986 and a number of recreational lakes in the Central Region. All data are seasonal averages.




1 Hall's Lake - 1985
2 Koshlong Lake - 1985
3 George's Lake - 1985
4 Lake St. John - 1985
5 Lake Scugog - 1985 Williams Point
6 Fox Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Fox Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




With only one year of sampling on Fox Lake it is impossible to comment on changes in water quality over time. We encourage continued sampling of Fox Lake to establish a long-term record of water quality.

GEORGE'S LAKE

HARCOURT TOWNSHIP

COUNTY OF HALIBURTON

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from George's Lake in 1987.

| Station Date | Main S.D. | Chl.*a* |
|---|---|---|
| Jul 5 | 3.0 | 3.9 |
| Jul 12 | 3.0 | 4.3 |
| Jul 26 | 2.5 | 4.6 |
| Aug 9 | 2.5 | 4.7 |
| Aug 16 | 2.8 | 3.3 |
| Sep 6 | 3.0 | 8.0 |
| | 2.8 | 4.8 |

Based on the data obtained by a good sampling program in 1987, George's Lake would be considered to be enriched in terms of its nutrient status. Water clarity, with an average Secchi disc reading of 2.8 m, was relatively low. Chlorophyll *a* concentrations ranging from 3.3 to 8.0 ug/L were indicative of relatively high densities of suspended algae.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for George's Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

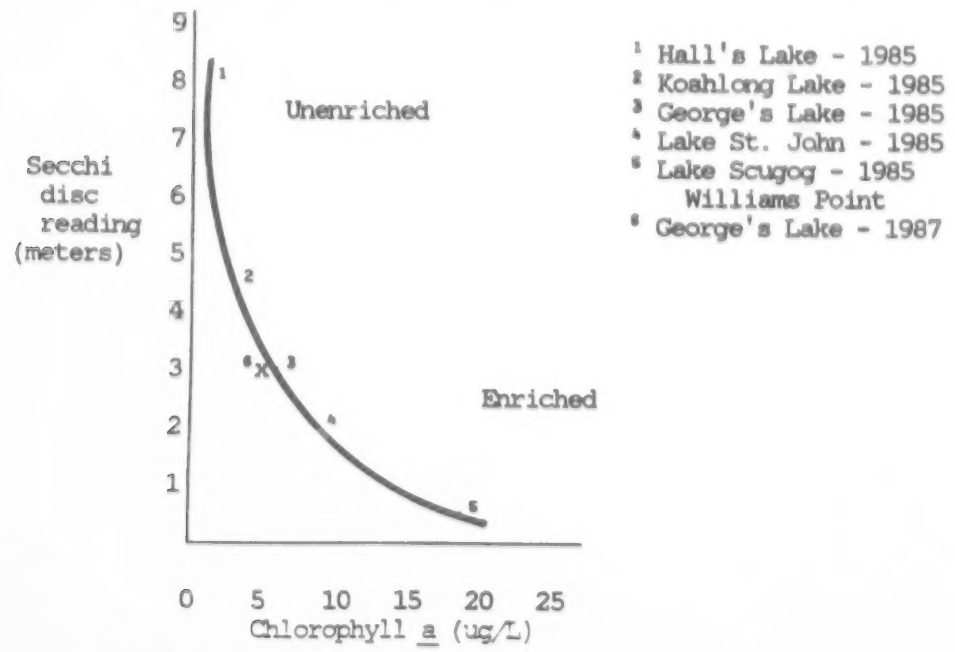
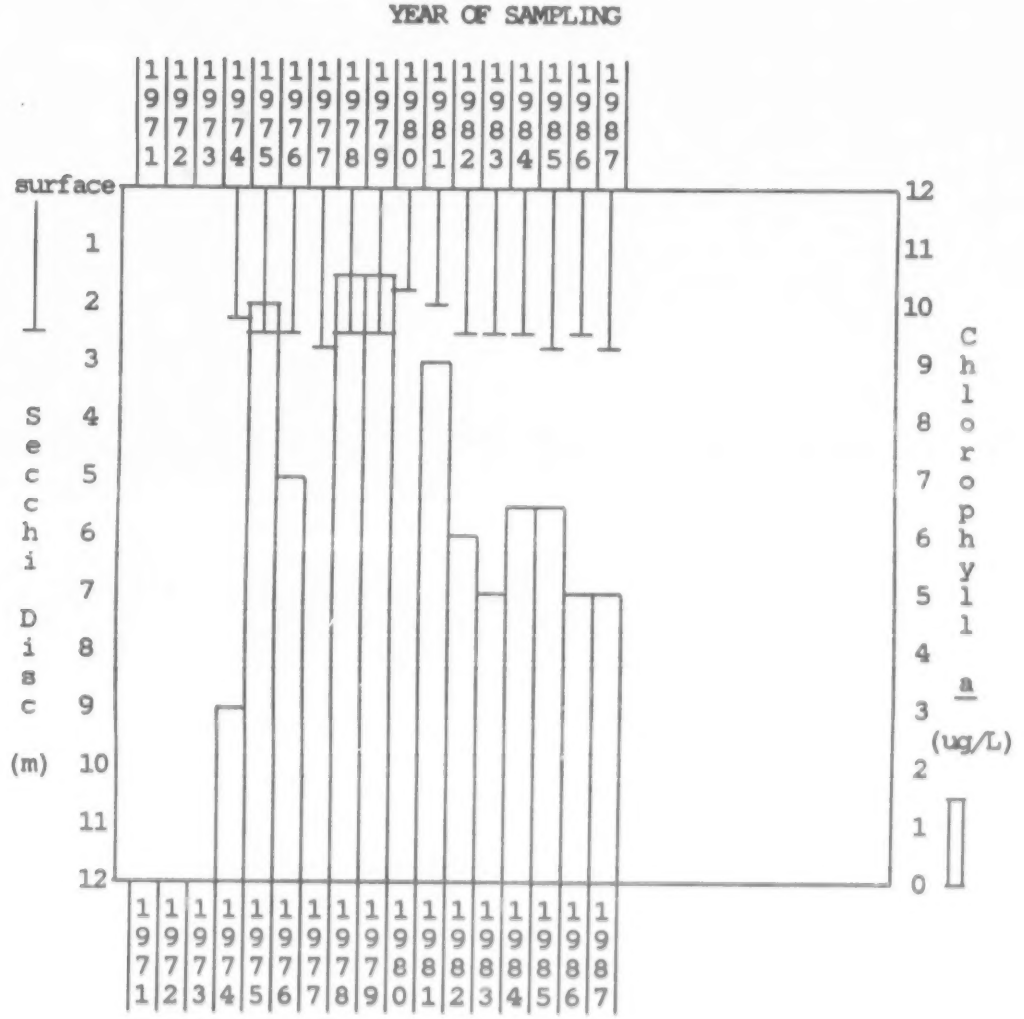


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for George's Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




An excelent record of water quality monitoring has been established on George's Lake with sampling having been conducted for the past fourteen years. Over that time period the water quality has changed little. Water transparency has been low while chlorophyll a concentrations have been high and variable, conditions typical of a nutrient enriched lake.

GO HOME LAKE

GIBSON WARD
TOWNSHIP OF GEORGIAN BAY

DISTRICT MUNICIPALITY OF
MUSKOKA

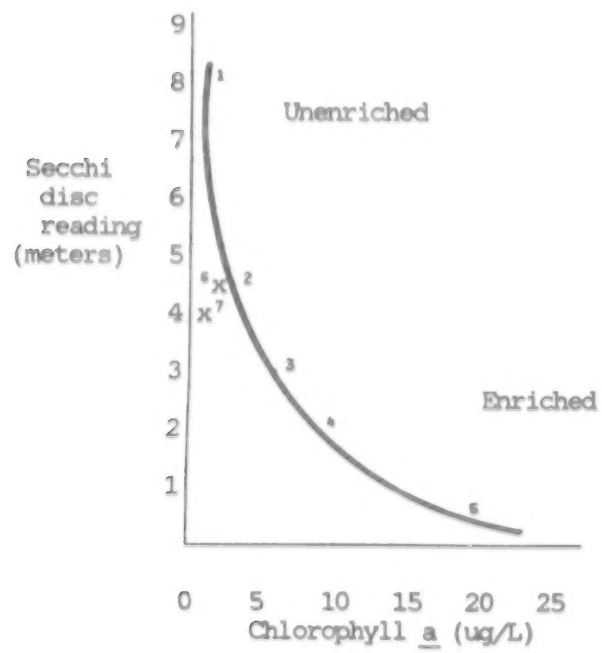
Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Go Home Lake in 1987.

| Station | North | | South | |
|---|---|---|---|---|
| Date | S.D. | Chl.*a* | S.D. | Chl.*a* |
| May 25 | 5.0 | 1.5 | 4.5 | 1.4 |
| Jun 29 | 4.5 | 1.2 | 4.5 | 1.2* |
| Aug 10 | 4.0 | 2.9 | 4.0 | 2.4 |
| Oct 18 | 4.0 | 3.8 | 3.5 | 3.2 |
| | 4.4 | 2.4 | 4.1 | 2.1 |

* Not sampled over 2x the Secchi depth.

Too few data were collected to allow confident commentary on the nutrient status of Go Home Lake in 1987. However, it would appear that water transparency, based on Secchi depth, was only moderate and suspended algal concentrations, based on chlorophyll *a* concentrations, were relatively low. Based on these data, Go Home Lake would be considered moderately enriched. If possible, in future, sampling should be conducted on six occasions over the summer to obtain more reliable seasonal averages.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Go Home Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point

Go Home Lake - 1987
[6] North station
[7] South station

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Go Home Lake (North). Averages based on fewer than 4 points were considered unreliable and were not graphed.

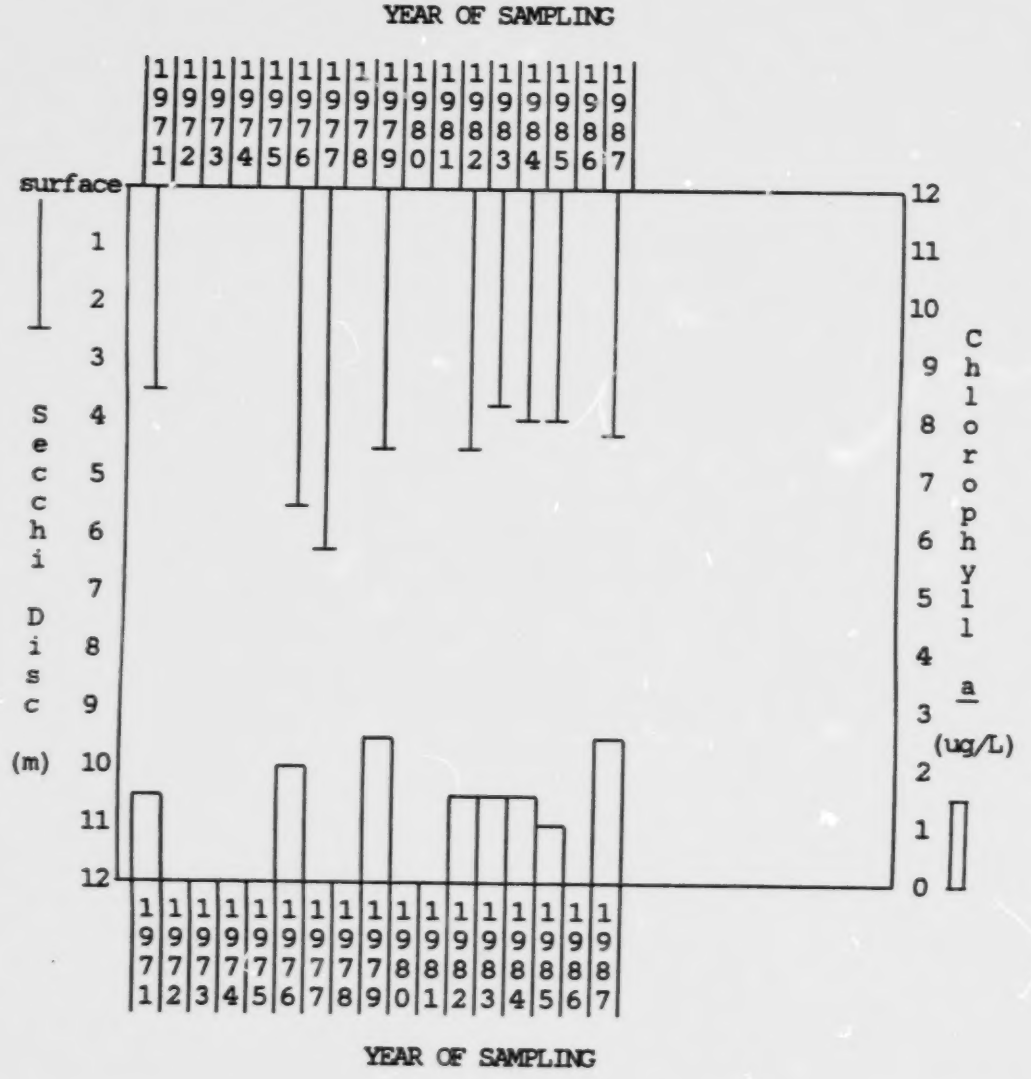
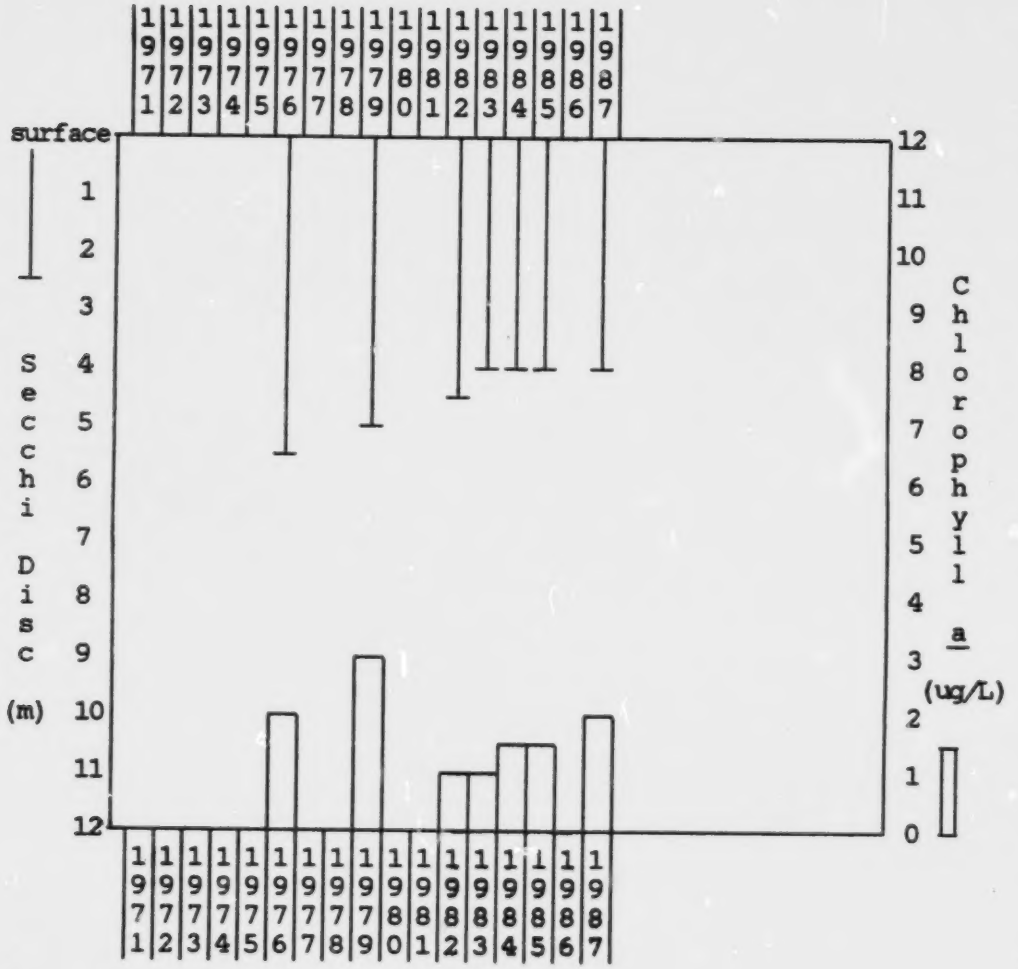


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Go Home Lake (South). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Go Home Lake has been sampled over seven summers since 1976 and while the data are somewhat variable, it would appear that the lake is not experiencing any major changes in nutrient status. Water clarity has been moderate and suspended algal concentrations have been relatively low indictaing a moderately enriched status for the lake. The two stations appear to be similar.

**GULL LAKE**

**LUTTERWORTH TOWNSHIP**

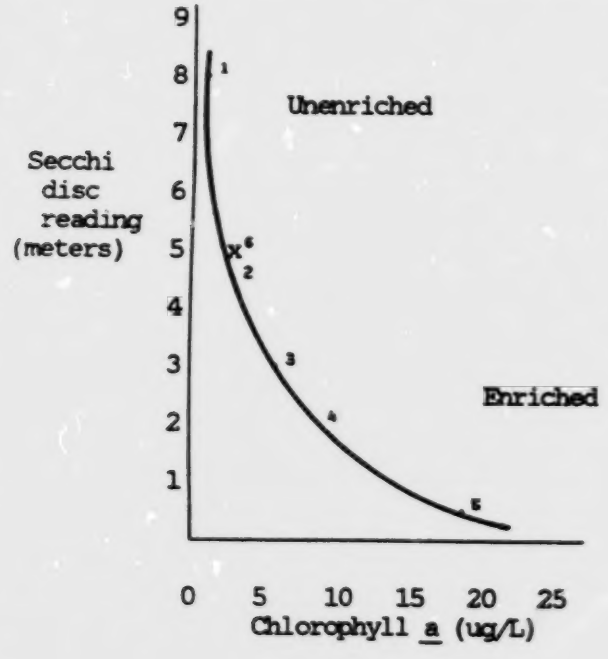
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Gull Lake in 1987.

| Station | Deep Bay | |
|---|---|---|
| Date | S.D. | Chl.*a* |
| May 18 | 4.0 | 3.2 |
| May 21 | 4.2 | 2.6 |
| May 24 | 4.0 | 3.9 |
| Jun 7 | 4.0 | |
| Jun 14 | 4.8 | 2.6 |
| Jun 21 | 6.0 | 2.0 |
| Jul 5 | 7.5 | 2.0 |
| Jul 19 | 6.0 | 1.2 |
| Aug 3 | 5.0 | 1.8 |
| Aug 9 | 5.0 | 3.0 |
| | 5.1 | 2.5 |

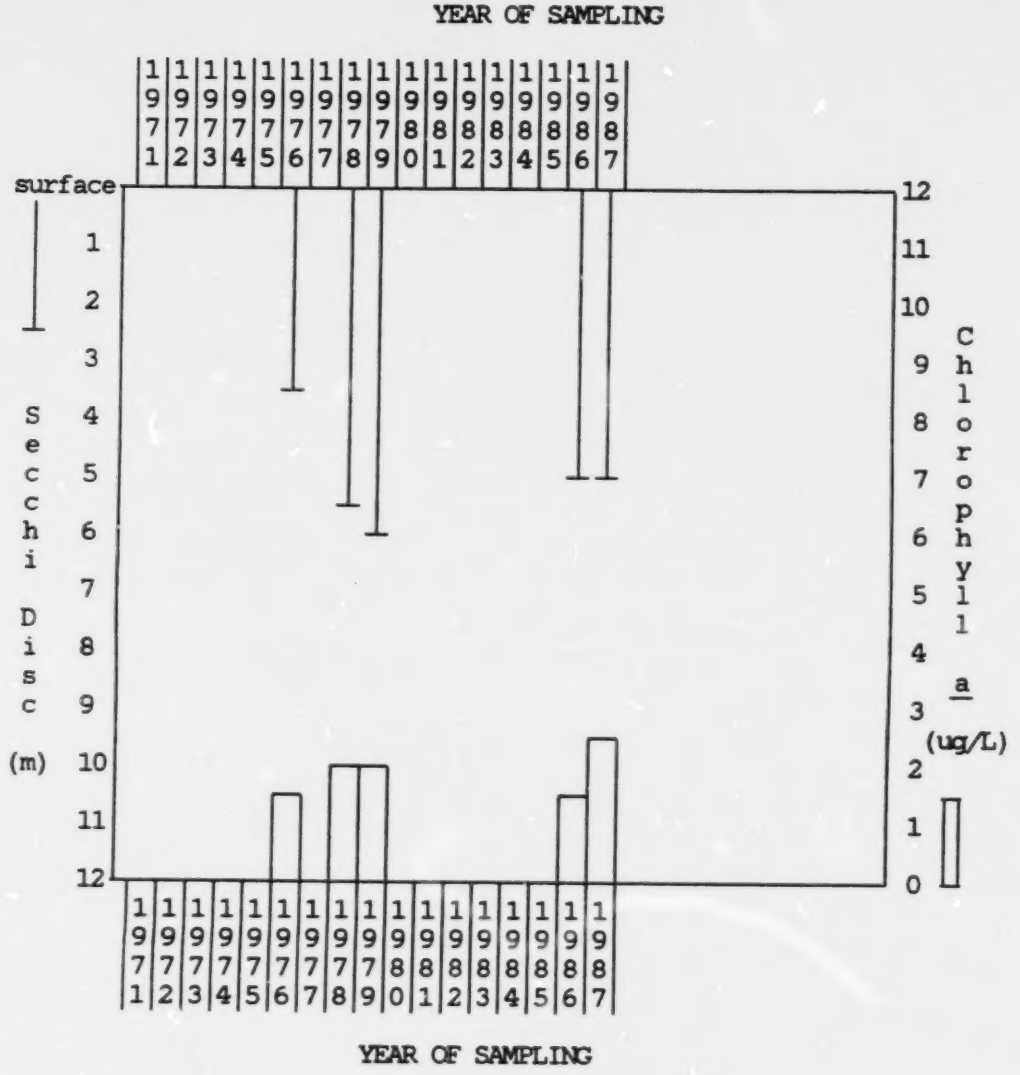
Once again, an excellent sampling program was conducted on Gull Lake in 1987. The average Secchi disc reading of 5.1 m is indicative of high water transparency while the mean chlorophyll *a* concentration of 2.5 ug/L is indicative of moderately low densities of suspended algae in the water column. Based on these results, the nutrient status of Gull Lake was borderline between unenriched and moderately enriched in the summer of 1987.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Gull Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Gull Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Gull Lake (Deep Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Even though the data have been somewhat variable, there appears to have been no significant change in water quality of Gull Lake since sampling commenced in 1976. Water transparency has generally been relatively high while algal densities have been relatively low. These data are indicative of unenriched or moderately enriched conditions. We hope that sampling continues on Gull Lake to establish a good long-term record of water quality.

**GULL LAKE**

**MUSKOKA WARD**
**TOWN OF GRAVENHURST**

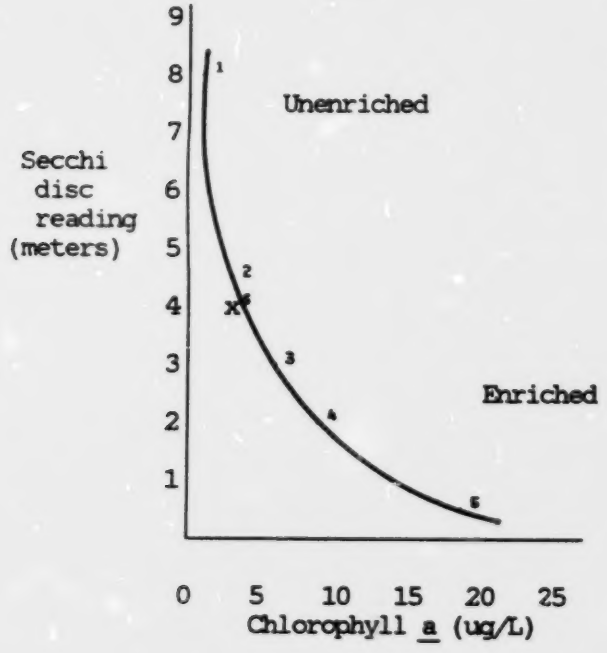
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Gull Lake in 1987.

| Station | Lower Gull | |
|---|---|---|
| Date | S.D. | Chl.a |
| May 18 | 4.0 | 1.0 |
| Jun 1 | 4.25 | 2.4 |
| Jun 25 | 4.5 | 4.9 |
| Jul 12 | 4.25 | 3.1 |
| Aug 3 | 3.6 | 1.5 |
| Aug 9 | 2.8 | 1.1 |
| Sep 7 | 4.5 | 1.9 |
| | --- | --- |
| | 4.0 | 2.3 |

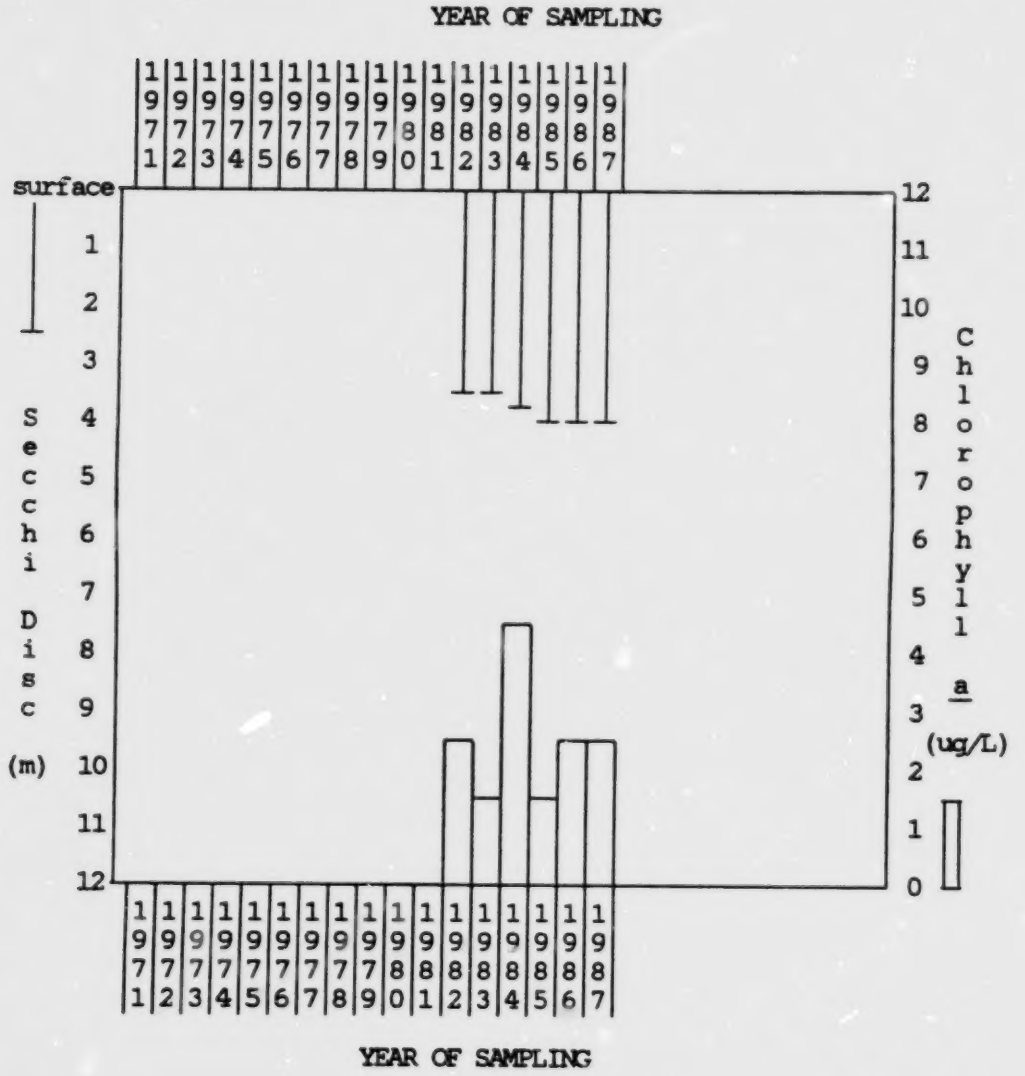
Data collected from a good sampling program indicate that Gull Lake was moderately enriched in the summer of 1987. Water transparency was moderate with Secchi depth values ranging from 2.8 to 4.5 m. Suspended algae densities were relatively low based on the average chlorophyll a concentration of 2.3 ug/L.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Gull Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Gull Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Gull Lake (Lower). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Since sampling commenced in 1982, Gull Lake has had water quality typical of moderately enriched conditions. Water transparency, ranging between 3.5 and 4.0 m, has been moderate while algal densities have been somewhat variable, ranging from 1.5 to 4.5 ug/L. We hope that sampling on Gull Lake will continue in 1988 to augment the historical data base.

**HALIBURTON LAKE**

**HARBURN TOWNSHIP**

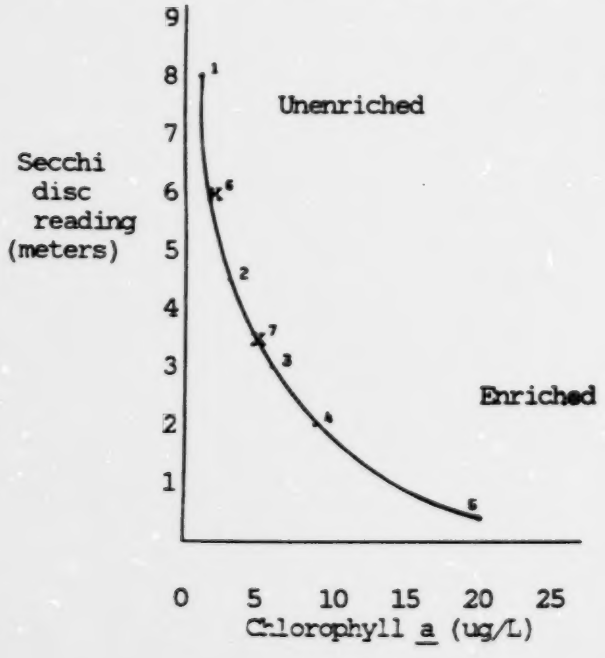
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll *a* (µg/L) data collected from Haliburton Lake in 1987.

| Station | Main- North | | South Bay | |
|---|---|---|---|---|
| Date | S.D. | Chl.*a* | S.D. | Chl.*a* |
| May 18 | 5.0 | 3.0 | 3.5 | 4.0 |
| May 31 | 7.0 | 1.3 | 3.0 | 6.7 |
| Jun 6 | 6.5 | 1.5 | 3.5 | 3.6 |
| Jun 20 | 5.5 | 2.0 | 3.5 | 3.0 |
| Jun 28 | 5.0 | 2.5 | 3.5 | 7.8 |
| Jul 5 | 6.0 | 1.6 | 3.0 | 6.5 |
| Jul 19 | 5.5 | 1.9 | 3.0 | 3.0 |
| Aug 4 | 6.0 | 2.7 | 4.0 | 5.6 |
| Aug 16 | 7.5 | 3.6 | 4.0 | 4.7 |
| Aug 23 | 6.0 | 2.1 | - | - |
| Aug 30 | 7.0 | 1.9 | - | - |
| | 6.1 | 2.2 | 3.4 | 5.0 |

Once again, an excellent sampling program was conducted at two locations in Haliburton Lake. The main lake exhibited typically unenriched conditions with high water transparncy (mean Secchi disk reading = 6.1 m) and low densities of suspended algae (mean chlorophyll *a* concentration = 2.2 µg/L). In contrast, the water of South Bay was enriched with nutrients and exhibited relatively low transparency (mean Secchi depth reading = 3.4 m) and high chlorophyll *a* concentrations (mean = 5.0 µg/L).

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Haliburton Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koahlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point

Haliburton Lake - 1987
[6] Main - North
[7] South Bay

Figure 2 : Historical record of average Secchi disc and chloropyll a results for Haliburton Lake (Main). Averages based on fewer than 4 points were considered unreliable and were not graphed.

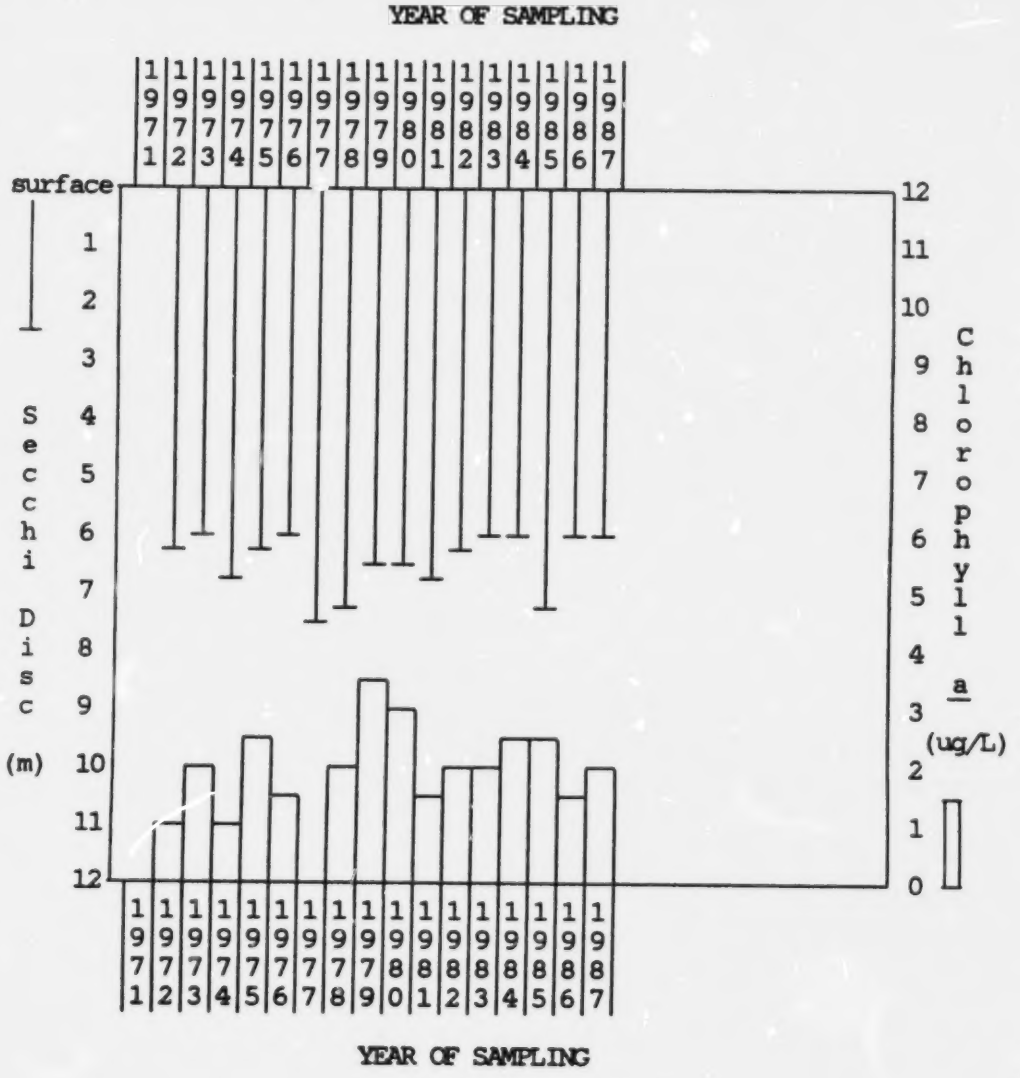
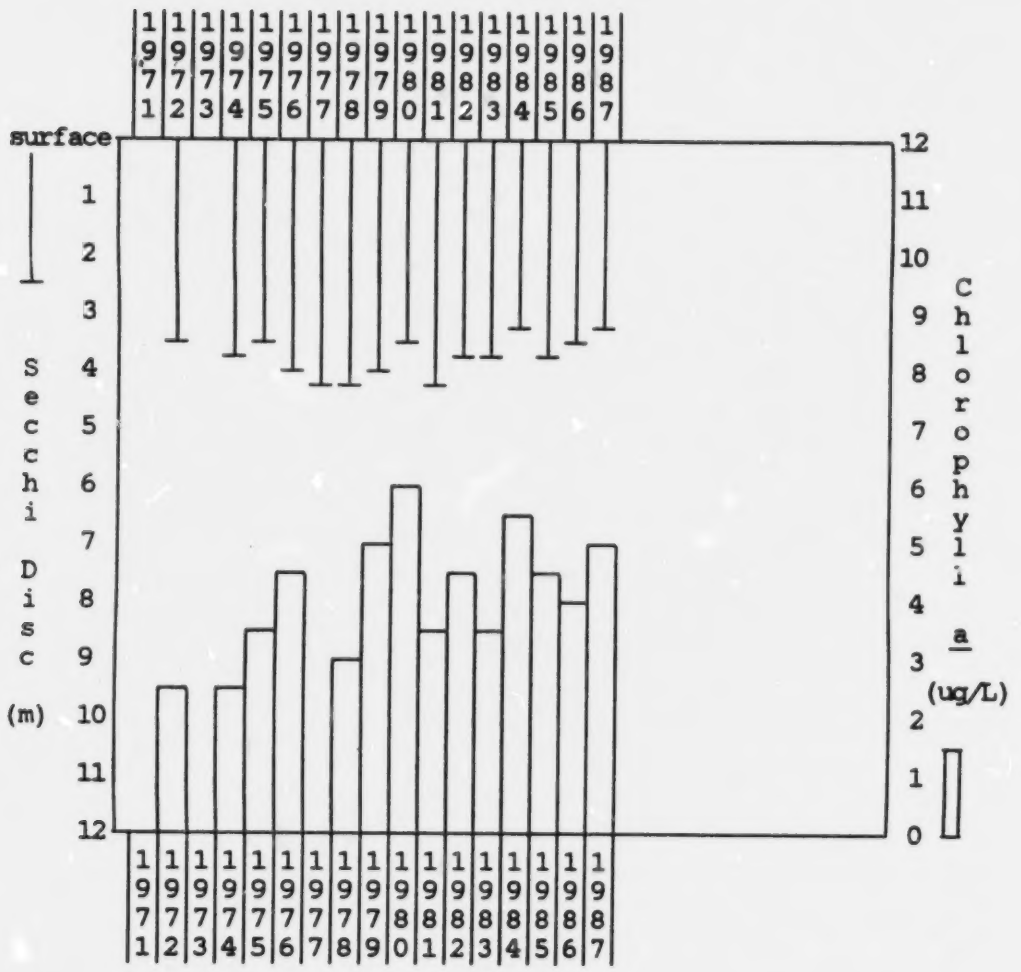


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Haliburton Lake (South). Averages based on fewer than 4 points were considered unreliable and were not graphed.




An excellent historical record of water quality now exists for Haliburton Lake through the cottagers' Self-Help program. This data base clearly shows the difference in water quality conditions between the main body of the lake and South Bay. The main body of the lake has maintained a high degree of water clarity and low to moderate levels of suspended algae typical of unenriched or moderately enriched conditions. In contrast, the water of South Bay has displayed moderately low water transparency and high levels of suspended algae, typical of enriched conditions. We hope that the excellent level of participation in the Self-Help program continues in 1988.

HALLS LAKE

STANHOPE TOWNSHIP

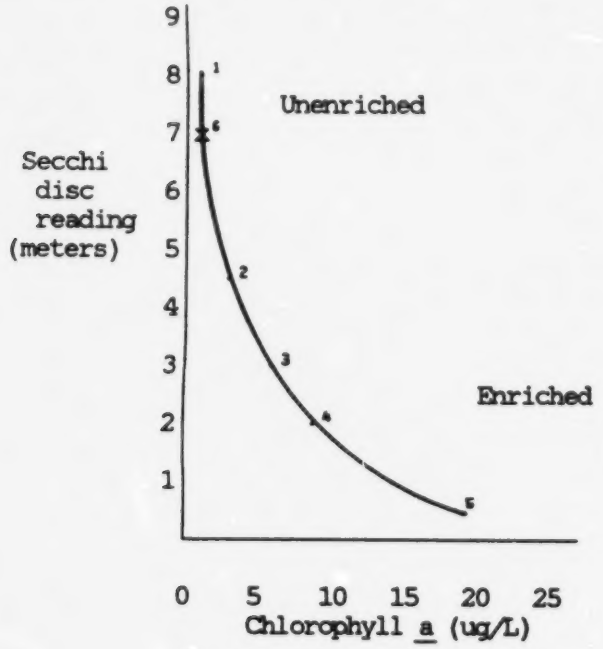
COUNTY OF HALIBURTON

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Halls Lake in 1987.

| Station | North End | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 7 | 7.5 | 1.0 |
| Jun 21 | 7.5 | 0.7 |
| Jul 6 | 7.5 | 1.1 |
| Jul 12 | 8.0 | 0.6 |
| Aug 17 | 5.0 | 1.7 |
| Sep 7 | 7.5 | 1.2 |
| | 7.2 | 1.1 |

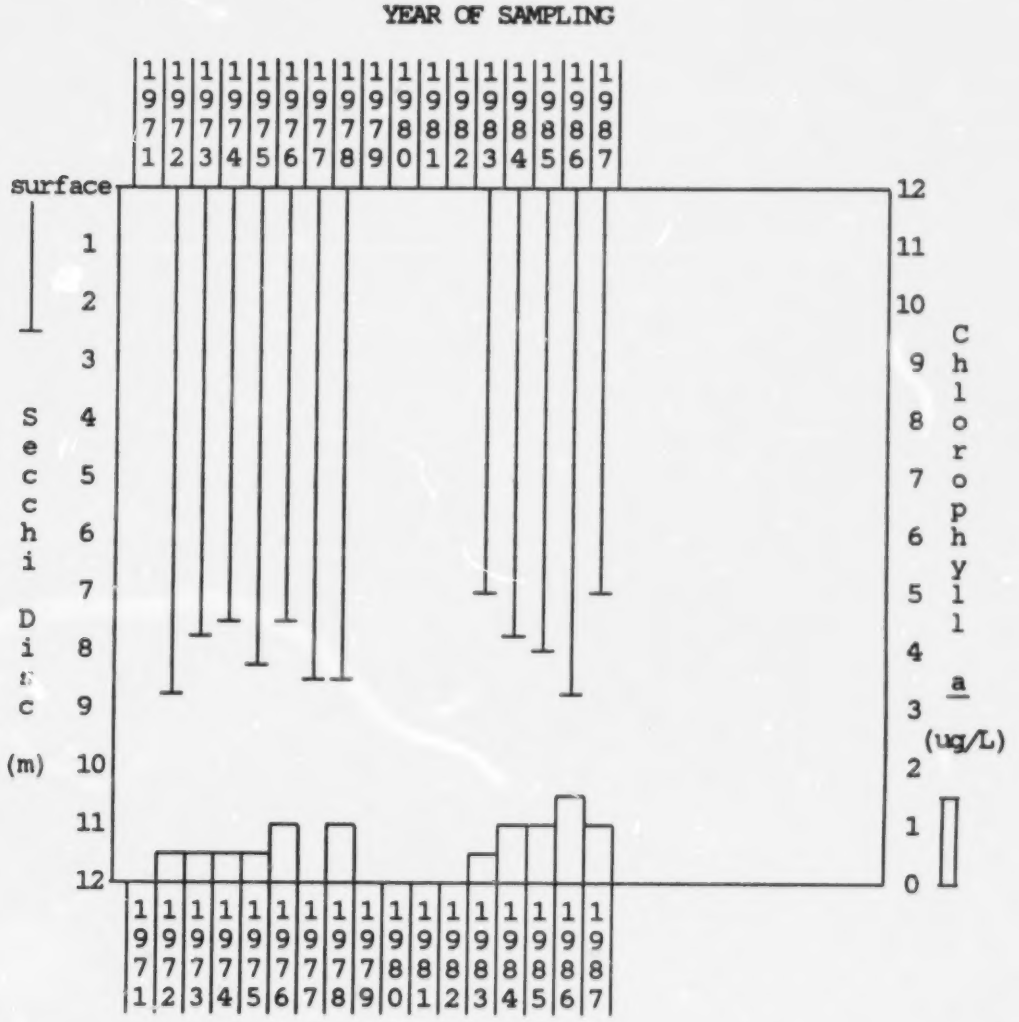
Data collected on six occasions in the summer of 1987 indicated that the water of Halls Lake was typical of unenriched lakes. Water transparency was high, with Secchi disc depths ranging from 5.0 to 8.0 m, while suspended algae densities were low, with chlorophyll a concentrations ranging from 0.6 to 1.7 ug/L.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Halls Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Hall's Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Halls Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




In 1987, as in other years since Self-Help monitoring commenced in 1972, Halls Lake exhibited unenriched nutrient conditions with excellent water quality. We hope that sampling continues in 1988 and in future years so that the excellent monitoring record is maintained.

**HARP LAKE**

**CHAFFEY WARD**
**TOWN OF HUNTSVILLE**

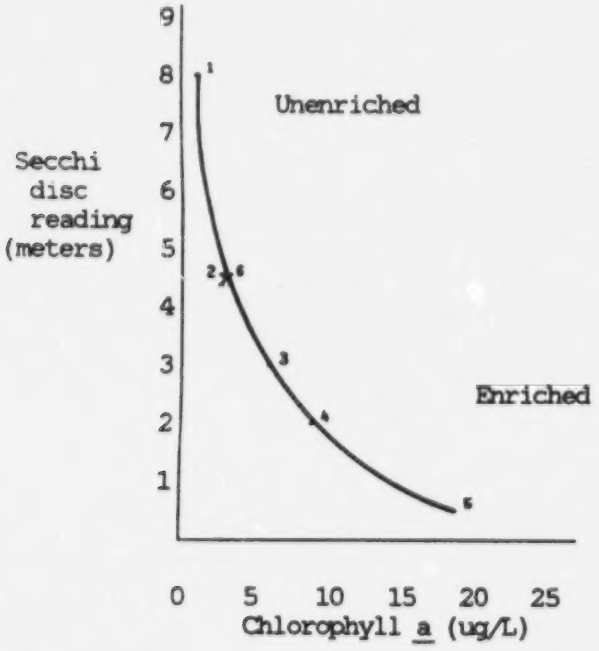
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Harp Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jul 5 | 4.5 | 4.4 |
| Jul 12 | 5.4 | 3.9 |
| Jul 19 | 4.2 | 4.5 |
| Jul 26 | 4.7 | 4.4 |
| Aug 16 | 4.9 | 4.1 |
| Aug 29 | 5.1 | 4.6 |
| Sep 6 | 4.9 | 4.2 |
| | 4.8 | 4.3 |

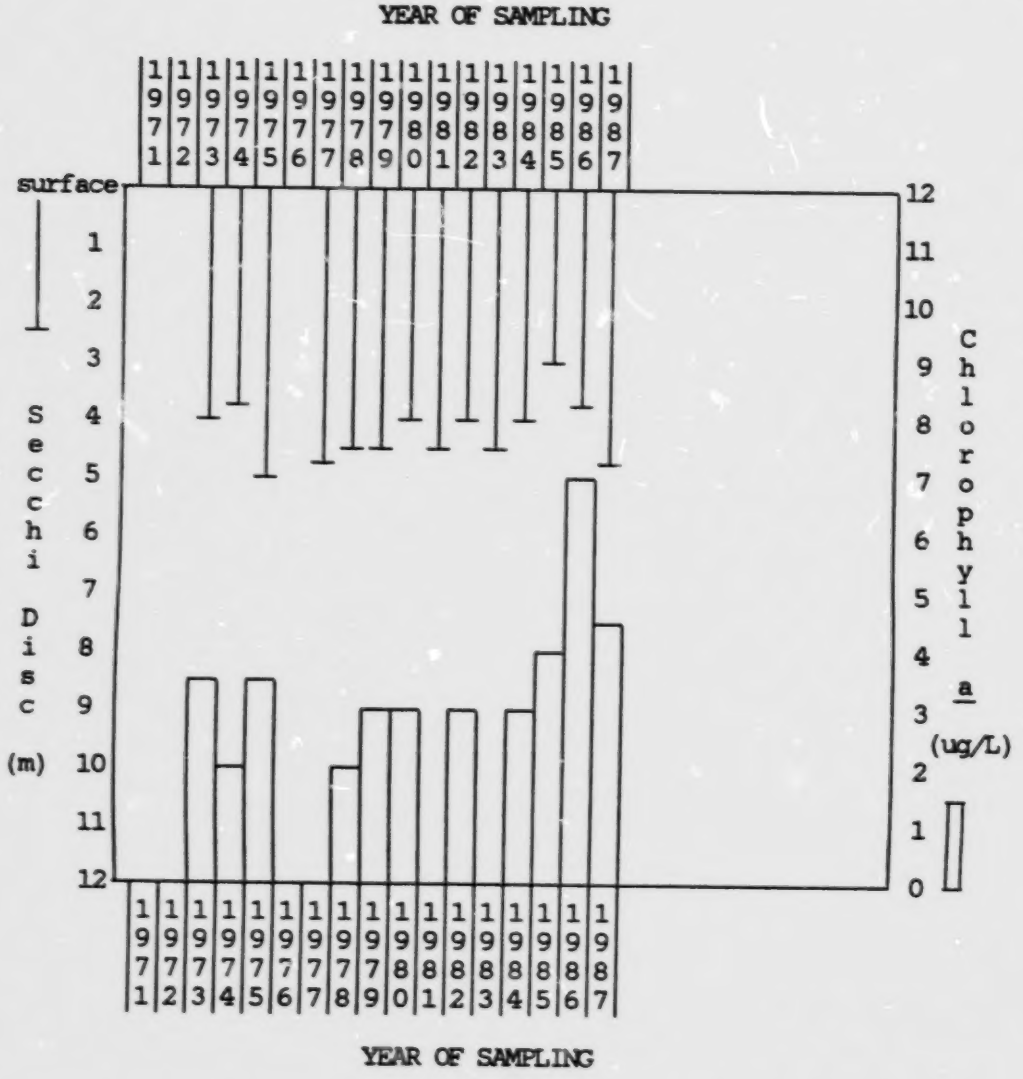
Harp Lake was sampled on seven occasions providing excellent information on water quality over the 1987 summer season. Water clarity was moderately high with Secchi disc depths ranging from 4.2 to 5.4 m. Suspended algae densities were also quite high based on chlorophyll a concentrations ranging from 3.9 to 4.6 ug/L. Based on these data Harp Lake was moderately enriched in 1987.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Harp Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Harp Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll *a* results for Harp Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Sampling has been conducted almost continuously on Harp Lake since 1973 providing an excellent long-term record of water quality. Over this period Harp Lake has exhibited moderately enriched conditions based on moderate water transparency and chlorophyll *a* concentrations. In recent years there has been a tendancy towards higher average chlorophyll *a* concentrations. Future sampling will elucidate this apparent trend.

**HEAD LAKE**

**LAXTON & DIGBY TOWNSHIPS**

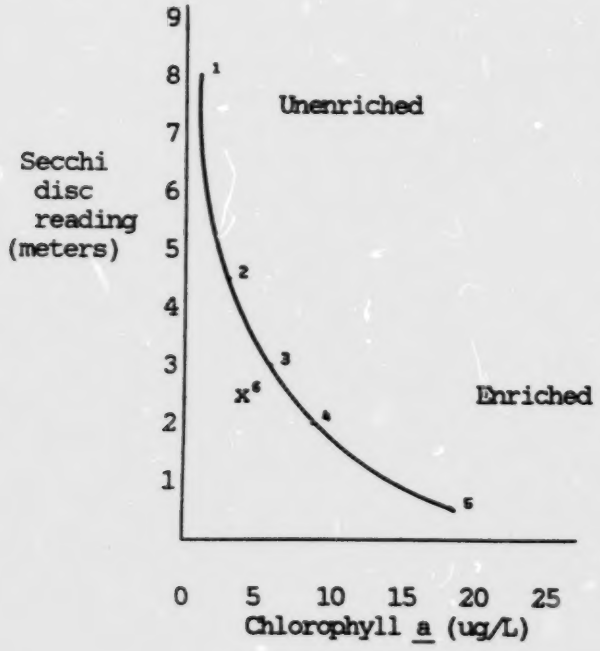
**COUNTY OF VICTORIA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Head Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.a |
| May 18 | 2.75 | 4.9 |
| May 31 | 2.75 | 2.7 |
| Jun 7 | 2.5 | 4.2 |
| Jun 14 | 2.75 | 4.0 |
| Jun 26 | 2.5 | 5.8 |
| Jul 5 | 2.75 | 3.5 |
| Jul 12 | 3.5 | 4.6 |
| Jul 19 | 2.5 | 3.1 |
| Jul 26 | 3.0 | 3.4 |
| Aug 9 | 2.5 | 5.2 |
| Aug 16 | 2.4 | 4.6 |
| Sep 7 | 2.5 | 2.9 |
| | 2.7 | 4.1 |

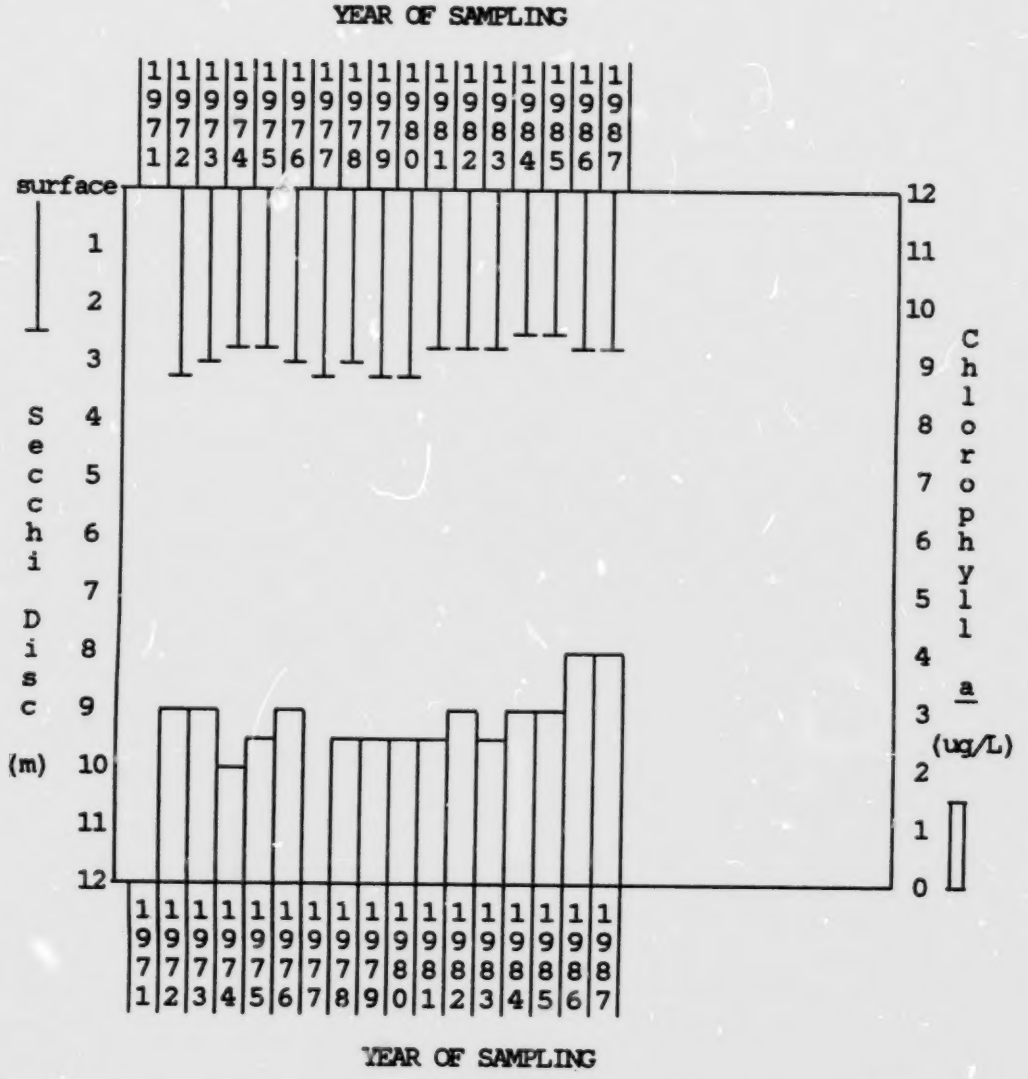
The data that were collected during an excellent water quality sampling program indicated that Head Lake was in an enriched nutrient condition in the summer of 1987. Water transparency, as measured by Secchi disc, was fairly low (range = 2.4 to 3.5 m) while suspended algae densities were moderately high based on chlorophyll a concentrations (range = 2.7 to 5.8 ug/L).

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Head Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Head Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Head Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




An excellent long-term record of water quality for Head Lake has been established with continuous sampling since 1972. Nutrient conditions have not changed over this period with low Secchi depth readings and relatively high chlorophyll a concentrations being indicative of enriched conditions.

**HORSESHOE (ELSIE) LAKE**

**MINDEN TOWNSHIP**

**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Horseshoe Lake in 1987.

| Station | North Side | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 21 | 6.9 | 3.3* |
| Jul 5 | 7.3 | 2.2* |
| Jul 19 | 5.5 | 2.0 |
| Aug 3 | 5.1 | 3.3 |
| Aug 16 | 5.1 | 2.5 |
| Sep 7 | 4.8 | 2.0 |
| | 5.8 | 2.6 |

* not sampled through 2x the Secchi Depth

Horseshoe Lake was sampled on 6 occasions providing good water quality data for the 1987 summer season. Water transparency was high (mean Secchi depth reading = 5.8 m). Suspended algae densities were moderately low with chlorophyll a concentrations ranging from 2.0 to 3.3 ug/L. These data indicate that Horseshoe Lake was unenriched to moderately enriched in terms of nutrients in 1987.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Horseshoe Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

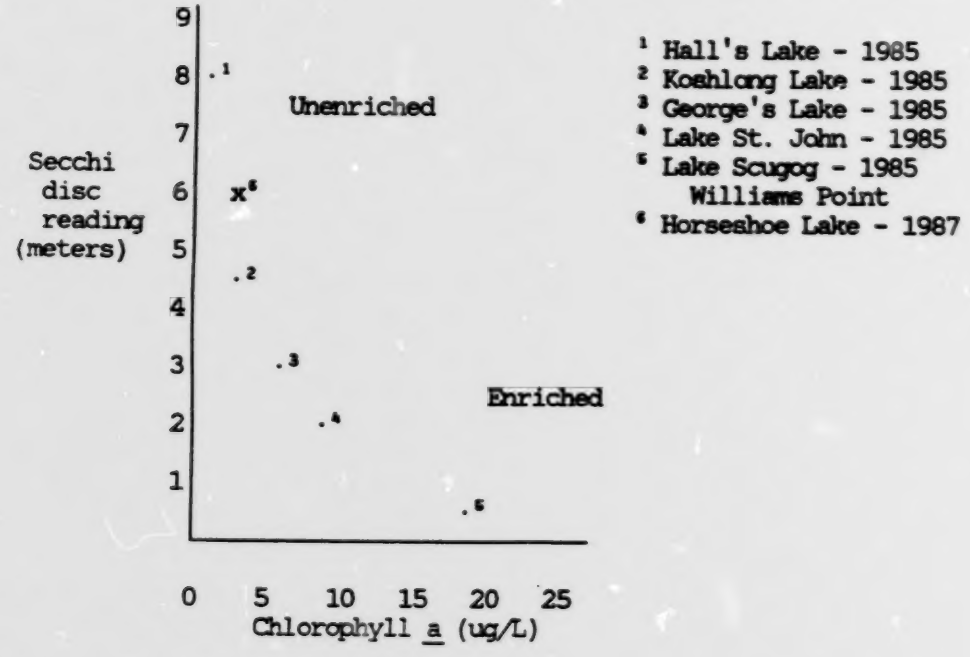
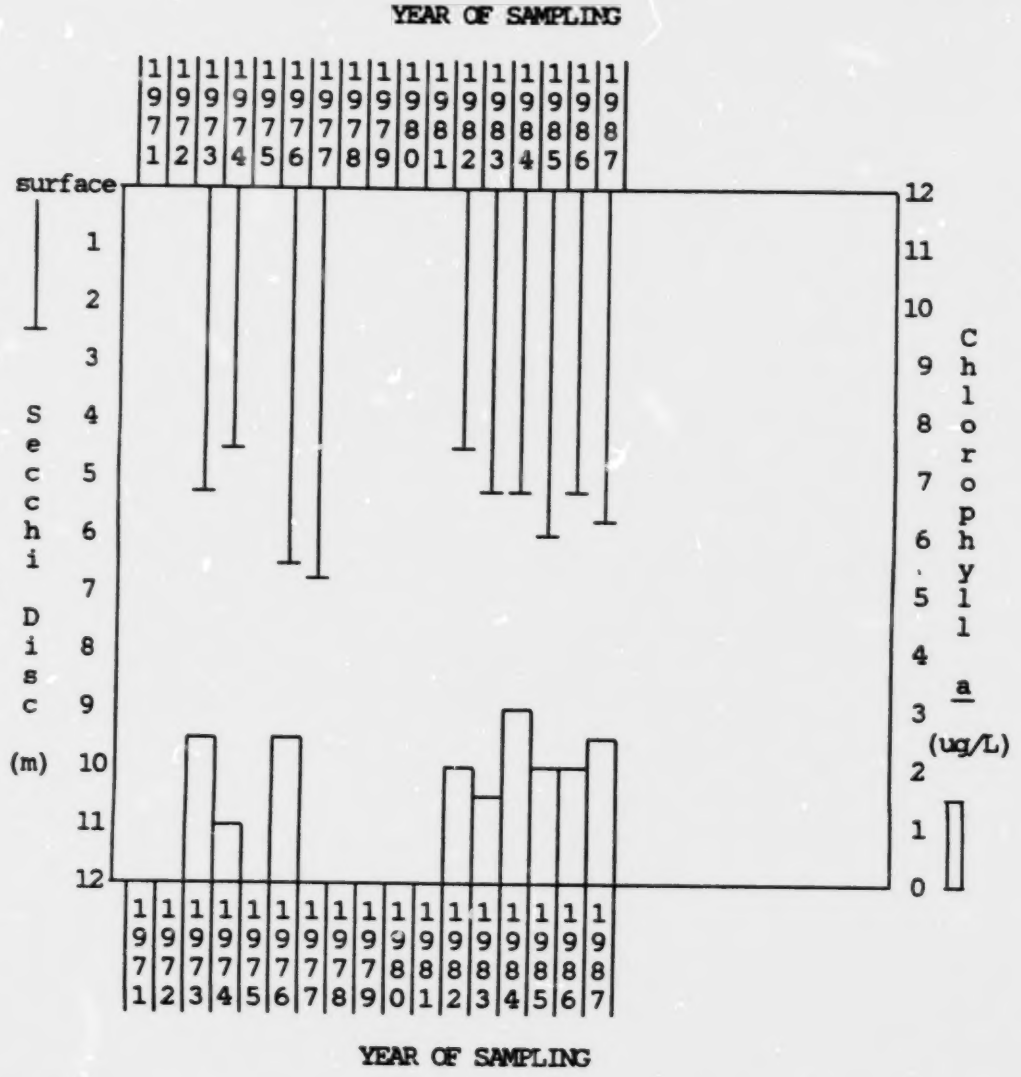


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Horseshoe Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Although water quality data have shown some fluctuation since sampling commenced in 1973, Horseshoe Lake has generally exhibited conditions of low to moderate nutrient enrichment. No trends in water quality over time have been obvious.

**JACK LAKE**

**BURLEIGH & METHUEN TOWNSHIPS**

**PETERBOROUGH COUNTY**

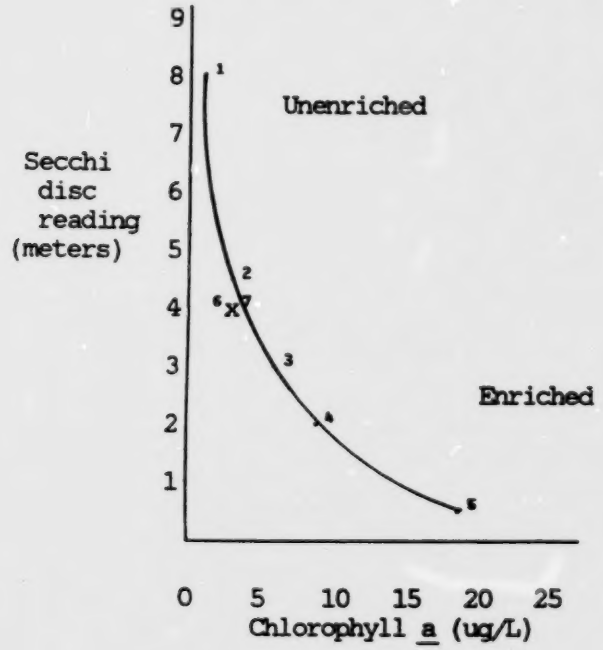
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Jack Lake in 1987.

| Station | Brooke's Bay | | Sharpe's Bay | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| May 31 | 2.5 | 1.6 | 4.0 | 2.9 |
| Jul 25 | 3.0 | 1.6* | 3.0 | 1.6 |
| Aug 4 | 4.5 | 2.6* | 4.5 | 4.9 |
| Aug 16 | 5.5 | 4.3* | 4.0 | 1.7 |
| Sep 7 | 3.5 | 2.5 | 4.5 | 3.0 |
| | 3.8 | 2.5 | 4.0 | 2.8 |

* Not sampled through 2x the Secchi depth.

Results from the 1987 summer sampling program on Jack Lake indicate that Brooke's Bay and Sharpe's Bay are similar in terms of nutrient enrichment. Both areas would be considered to be moderately enriched based on average Secchi depth readings of 3.8 to 4.0 m and average chlorophyll a concentrations of 2.5 to 2.8 ug/L. The frequency of sampling should be increased to at least six times over the summer to provide more reliable summer averages.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Jack Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point

Jack Lake - 1987
[6] Brooke's Bay
[7] Sharpe's Bay

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Jack Lake (Brooke's Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.

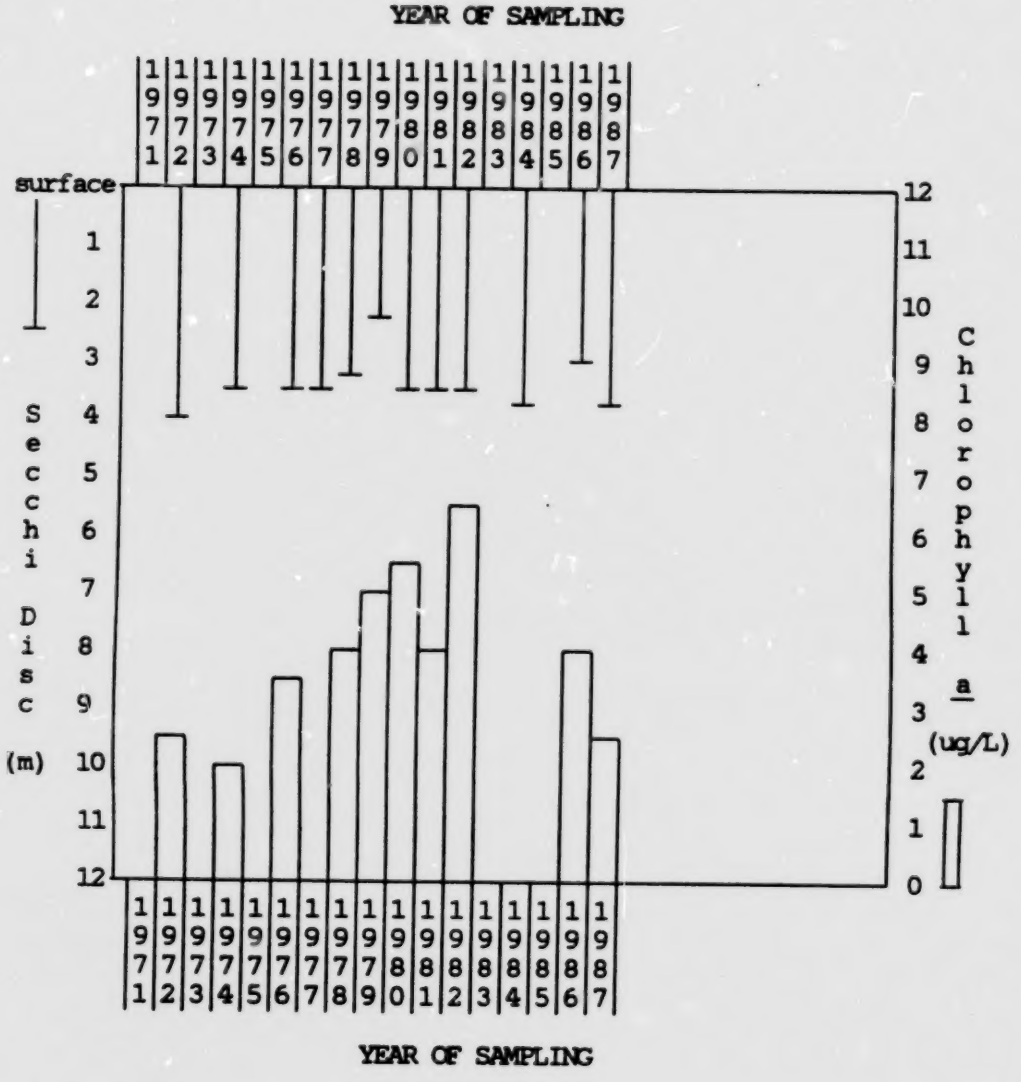
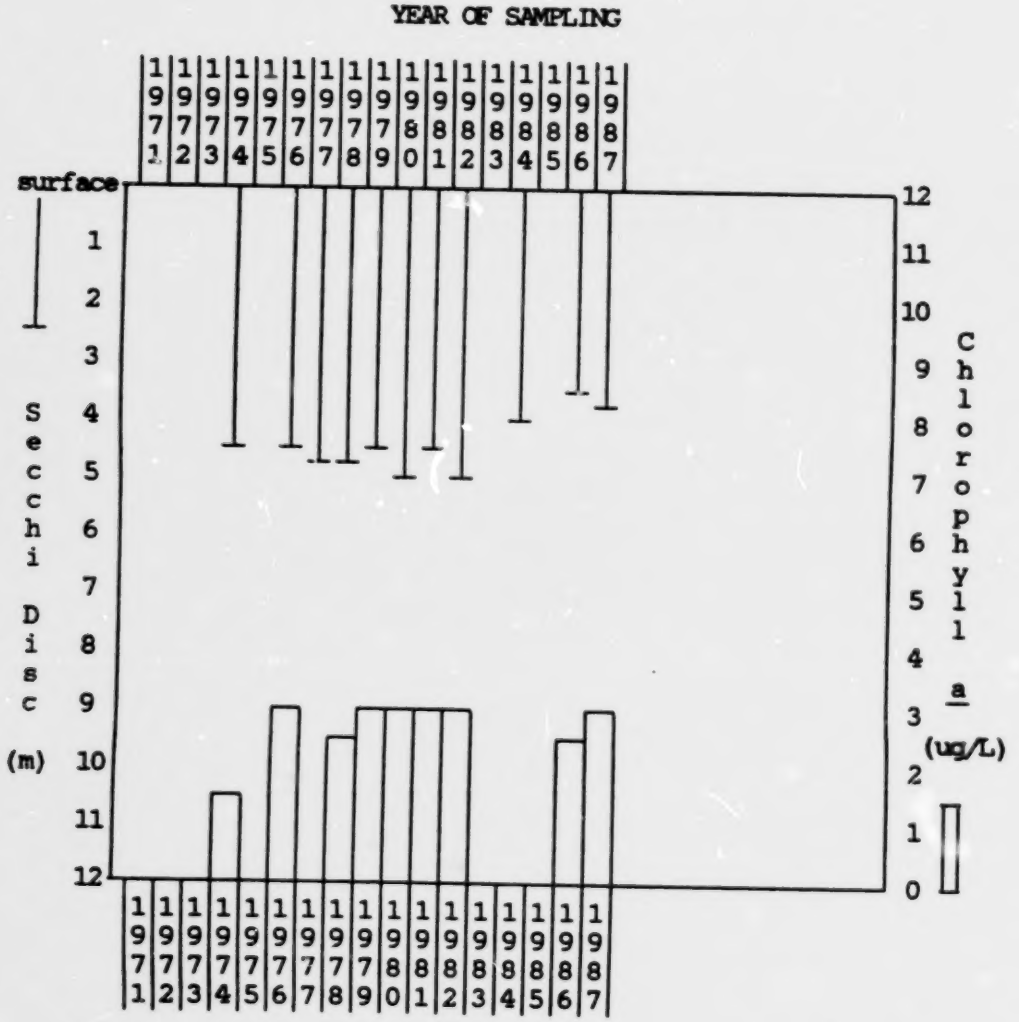


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Jack Lake (Sharpe's Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Both Brooke's Bay and Sharpe's Bay exhibit moderate nutrient enrichment conditions based on water transparency as measured by Secchi disc and on suspended algal densities as measured by chlorophyll a concentrations. Although there has been some variation in conditions over the years, particularly in chlorophyll a concentrations in Brooke's Bay, there has been no obvious trend in water quality changes.

KAHSHE LAKE

MORRISON WARD
TOWN OF GRAVENHURST

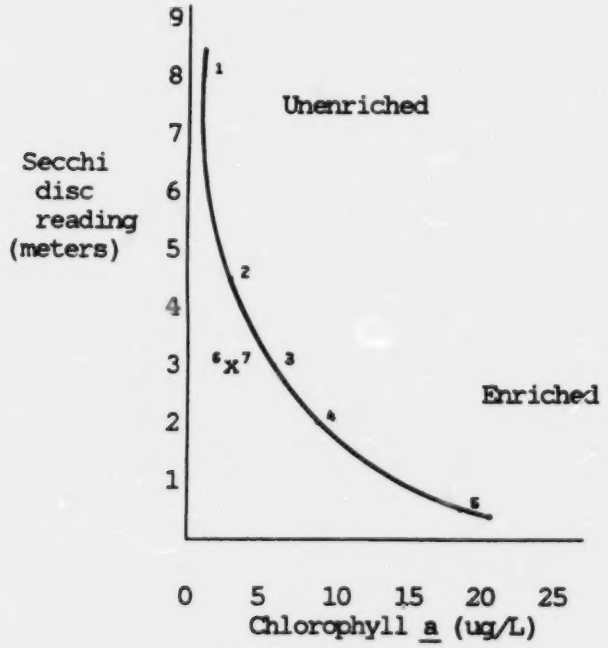
DISTRICT MUNICIPALITY OF
MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll a (ug/l) data collected from Kahshe Lake in 1987.

| Station | Kluey's Bay | | Windy Cove | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jul 12 | 3.25 | 3.8 | 3.25 | 3.6 |
| Jul 19 | 3.0 | 3.9 | 2.75 | 3.7 |
| Aug 3 | 3.0 | 2.8 | 3.0 | 2.1 |
| Aug 16 | 3.0 | 1.7 | 3.0 | 2.0 |
| Aug 23 | 2.75 | 2.9 | 2.75 | 3.5 |
| Aug 30 | 3.0 | 3.5 | 3.0 | 3.2 |
| | 3.0 | 3.1 | 3.0 | 3.0 |

Data from a good sampling program conducted in 1987 indicated that Kahshe Lake was moderately enriched in terms of its nutrient status. No difference in water quality was discernible between Kluey's Bay and Windy Cove. Both stations were characterized by moderate water clarity (Secchi disc readings ranging from 2.75 to 3.25 m) and moderate concentrations of suspended algae (chlorophyll a concentrations ranging from 1.7 to 3.9 ug/L).

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Kahshe Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point

Kahshe Lake - 1987
[6] Kluey's Bay
[7] Windy Cove

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Kahshe Lake (Kluey's Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.

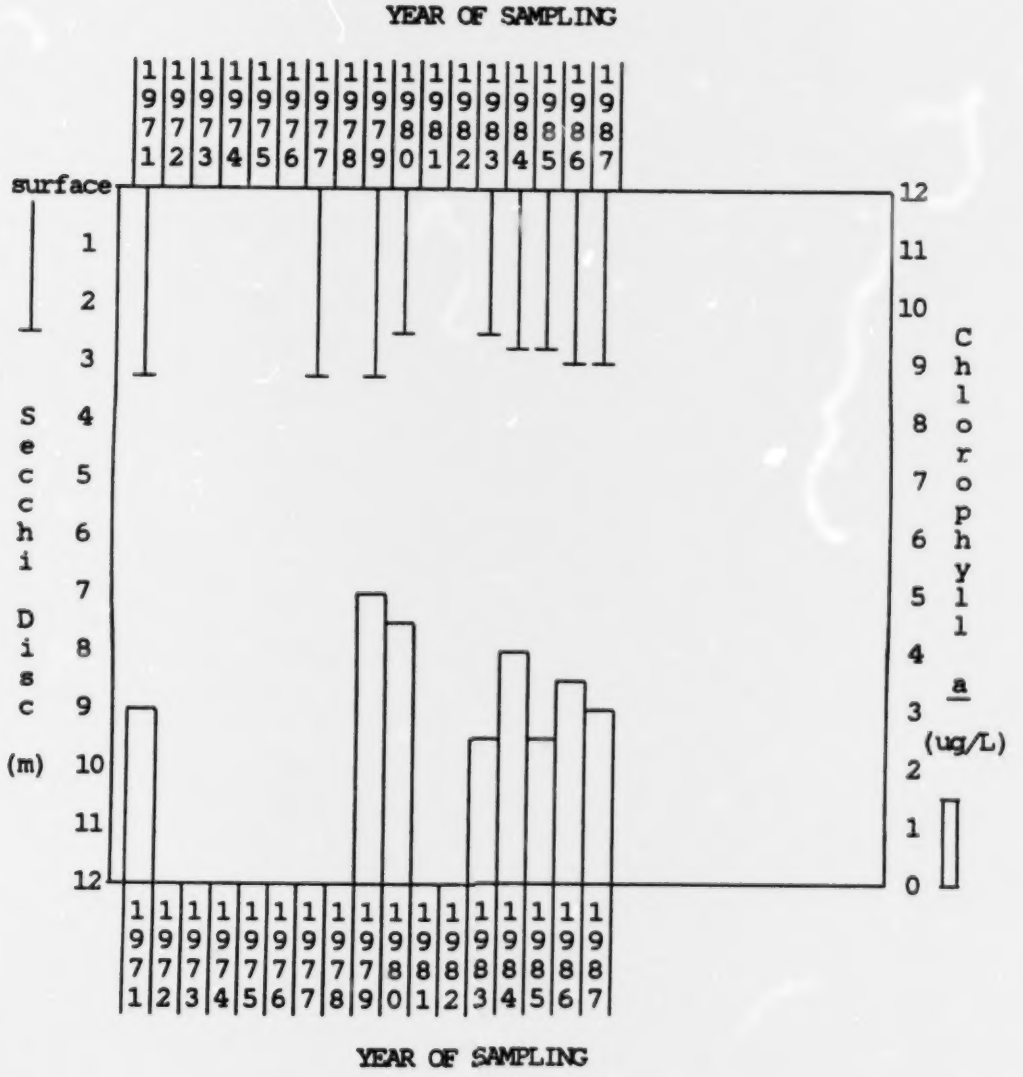
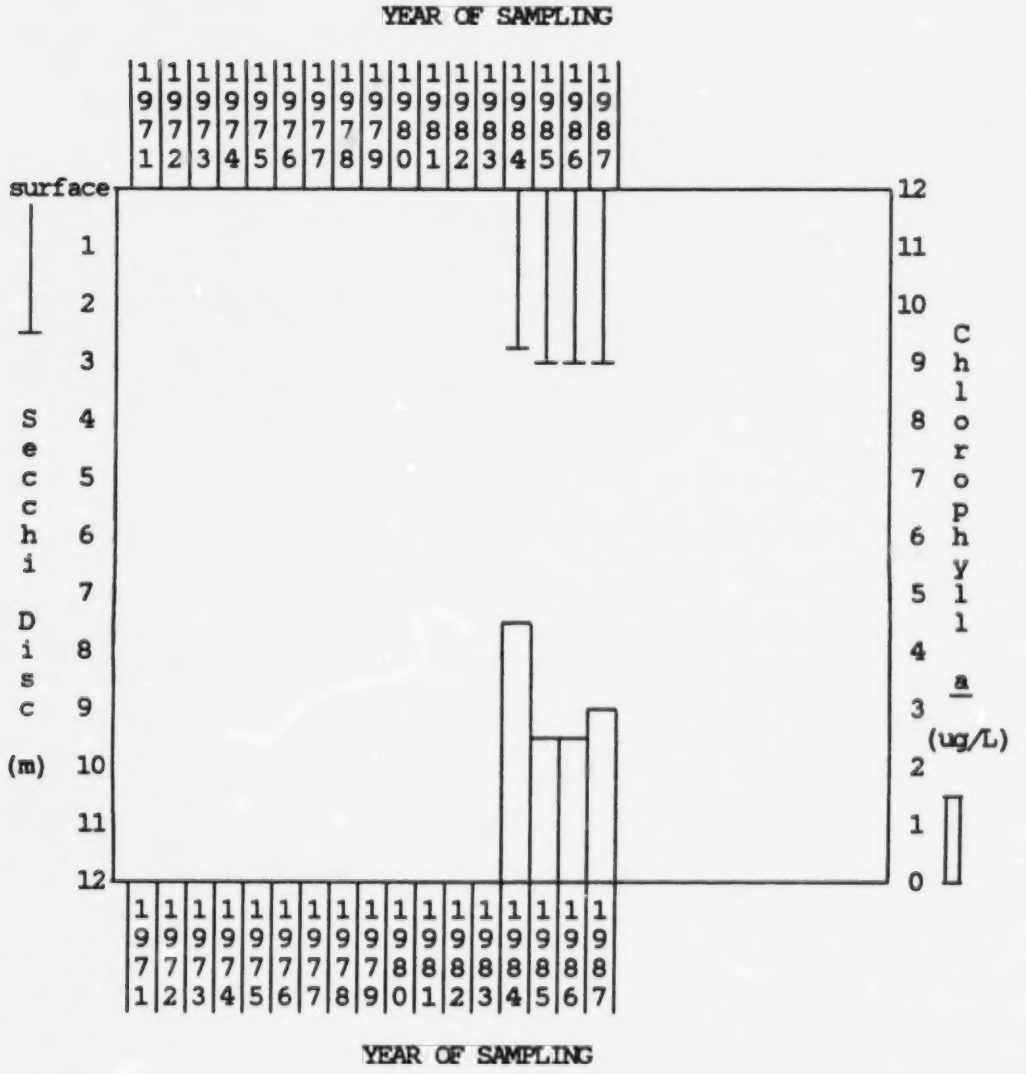


Figure 3 : Historical record of average Secchi disc and chlorophyll *a* results for Kahshe Lake (Windy Cove). Averages based on fewer than 4 points were considered unreliable and were not graphed.




The water quality of Kahshe Lake, based on data collected in Kluey's Bay, does not appear to have changed since sampling began in 1971. Though there has been some variation, Secchi depth readings and chlorophyll *a* concentrations have been, for the most part, indicative of moderately enriched nutrient conditions. The data collected from Windy Cove in the past few years have been similar.

KASHAGAWIGAMOG LAKE

DYSART & MINDEN TOWNSHIPS

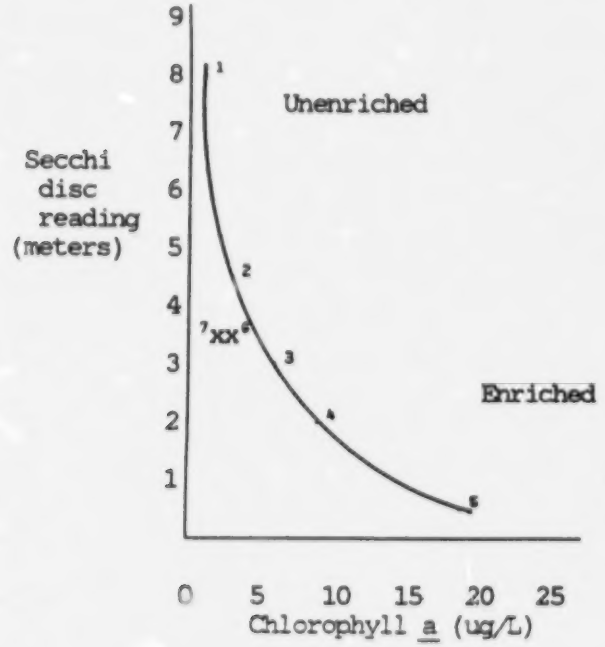
COUNTY OF HALIBURTON

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Kashagawigamog Lake in 1987.

| Station | South End | | Venture Bay | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| May 18 | 2.5 | 7.5 | - | - |
| Jun 7 | 3.5 | 2.8 | - | - |
| Jun 21 | 3.5 | 2.9 | - | - |
| Jul 5 | 3.5 | 3.0 | - | - |
| Jul 12 | 3.5 | 2.3 | 3.5 | 2.4 |
| Jul 19 | 3.0 | 1.8 | 3.7 | 2.0 |
| Aug 3 | 4.0 | 2.3 | - | - |
| Aug 9 | 3.5 | 2.9 | - | - |
| Aug 16 | - | - | 4.0 | 2.0 |
| Aug 23 | 3.5 | 1.8 | - | - |
| Aug 31 | - | - | 2.8 | 1.7 |
| Sep 7 | - | - | 4.0 | 1.8 |
| | 3.4 | 3.0 | 3.6 | 2.0 |

Two locations in Kashagawigamog Lake were sampled in 1987. The water at both locations was moderately enriched based on water transparency as determined by Secchi depth readings and based on algae densities as measured by chlorophyll a concentrations. However, some caution should be exercised in comparing the two locations since they were sampled over different periods of time. To provide more reliable averages, Venture Bay should be sampled on at least six occasions during the summer.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Kashagawigamog Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point

Kashagawigamog Lake - 1987
[6] South End
[7] Venture Bay

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Kashagawigamog Lake (South). Averages based on fewer than 4 points were considered unreliable and were not graphed.

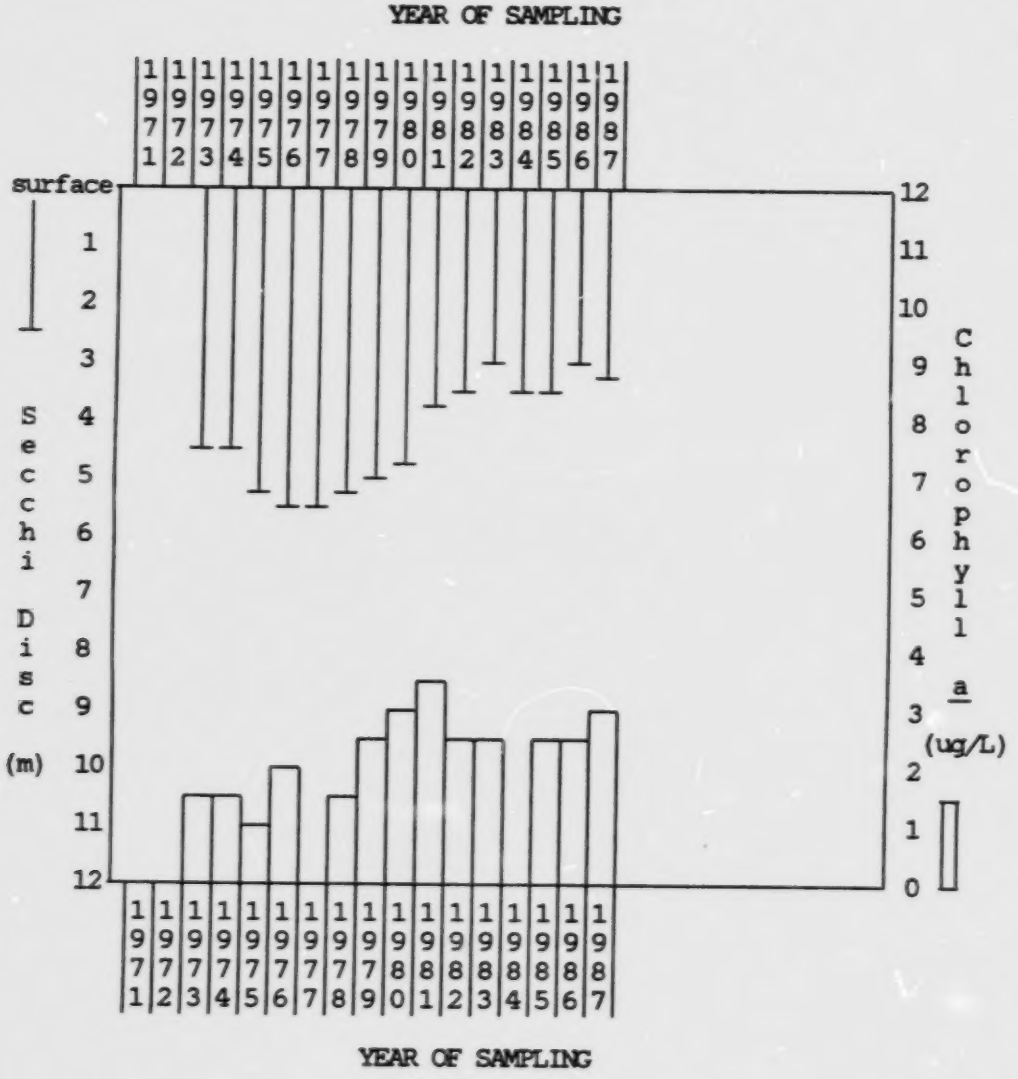
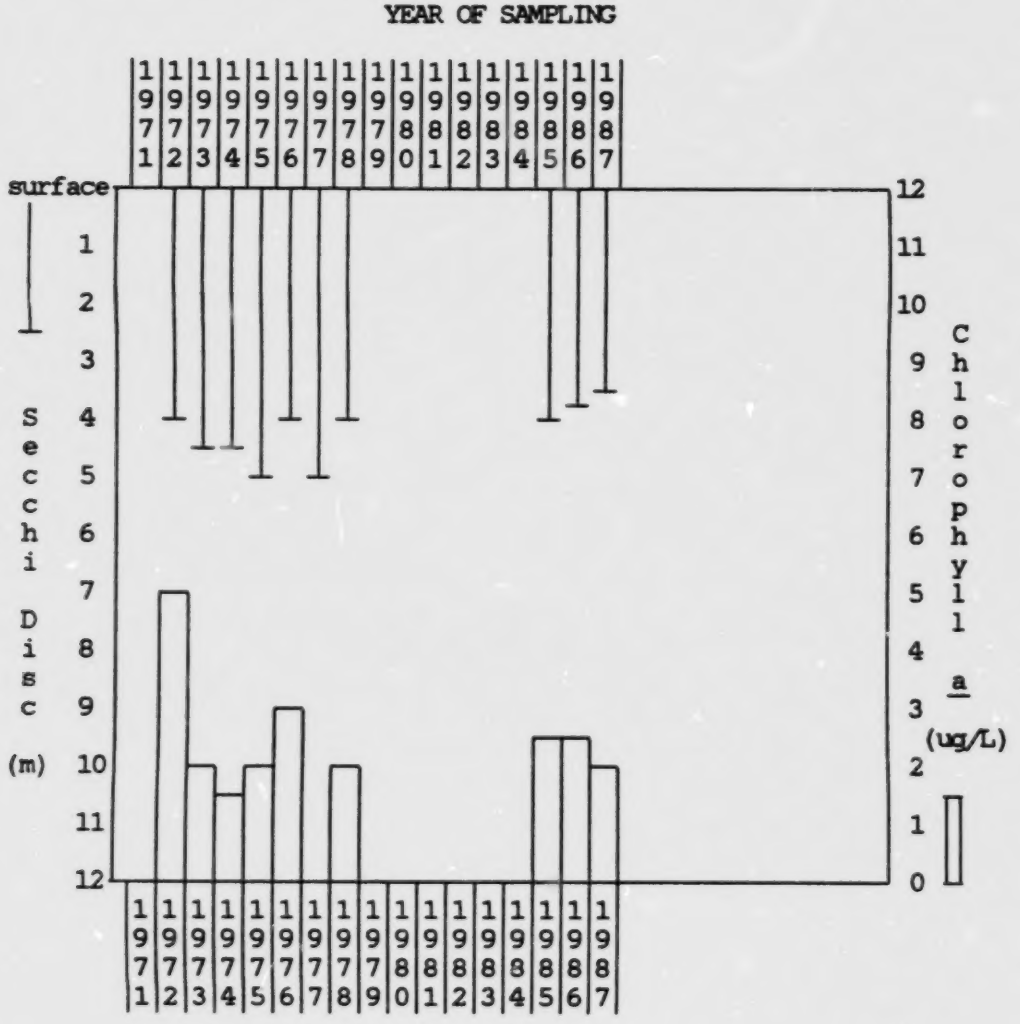


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Kashagawigamog Lake (Venture Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Based on the data collected from the South station, Kashagawigamog Lake appeared to suffer a decline in water quality in the late '70s and early '80s as indicated by a decline in water clarity and an increase in suspended algal concentrations. Since 1981 the water quality has remained more or less the same, typical of moderately enriched conditions. The data from Venture Bay are also typical of moderately enriched conditions.

**KAWAGAMA LAKE**

**SHERBORNE TOWNSHIP**

**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Kawagama Lake in 1987.

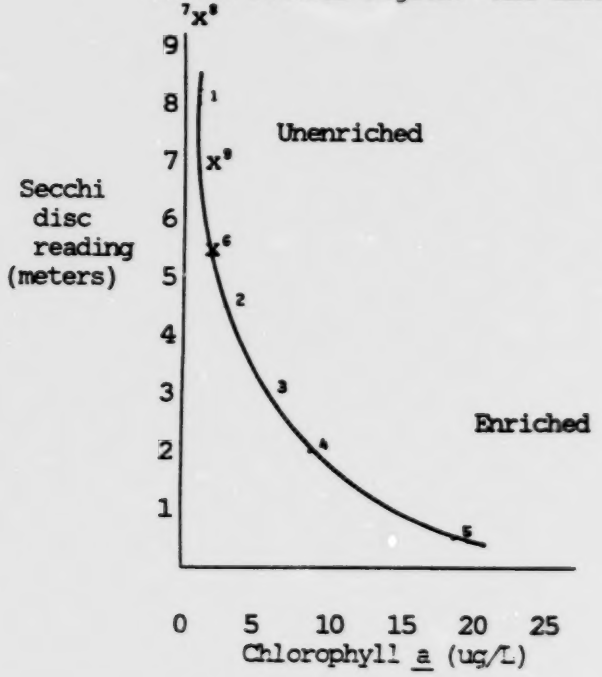
| Station | 1-Minden Bay | | 3-Fishpole Pt | | 4-North Shore | | 5-Fletcher | |
|---|---|---|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | S.D. | Chl.a | S.D. | Chl.a |
| Jun 21 | 6.25 | 1.2* | 11.0 | 1.0 | 12.0 | 0.7 | 8.0 | 1.5 |
| Jun 28 | 5.75 | 1.8 | 8.0 | 0.8 | 7.5 | 0.9 | 5.75 | 1.7 |
| Jul 5 | 6.5 | 1.6* | 10.0 | 0.6 | 10.5 | 0.7 | 8.0 | 1.4 |
| Jul 12 | 7.0 | 0.9* | 13.0 | 0.4 | 12.25 | 0.6 | 7.75 | 1.2 |
| Jul 19 | 5.5 | 1.8 | 11.0 | 0.7 | 11.5 | 0.6 | 7.75 | 1.5 |
| Jul 27 | 6.0 | 2.2* | 8.0 | 0.8 | 8.5 | 1.1 | 7.5 | 2.4 |
| Aug 16 | 4.5 | 3.7* | 7.0 | 1.3 | 7.5 | 1.5 | 5.5 | 2.4 |
| Aug 23 | 4.5 | 3.3* | 8.0 | 1.2 | 6.5 | 39.0** | 6.0 | 2.5 |
| Sep 7 | 4.5 | 3.7* | 9.0 | 2.3 | 9.25 | 1.3 | 6.25 | 2.8 |
| | 5.6 | 2.2 | 9.4 | 1.0 | 9.5 | 0.9** | 6.9 | 1.9 |

* not sampled through 2x the Secchi depth.

** possibly a spurious result -- it seems unreasonable based on the high degree of water clarity and the chlorophyll a concentrations at other times. The average of 0.9 ug/L excludes this reading.

(For text, see attached page.)

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Kawagama Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.



Disregarding the one possibly spurious chlorophyll a concentration of 39 ug/L, Kawagama Lake was unenriched with excellent water quality in 1987. Water clarity was high with average Secchi disk readings ranging from 5.6 to 9.5 m. Densities of suspended algae were low, averaging between 0.9 and 2.2 ug/L chlorophyll a. The Fletcher and, particularly, the Minden Bay station demonstrated a greater degree of enrichment than stations at Fishpole Point and the North Shore.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Kawagama Lake (Minden Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.

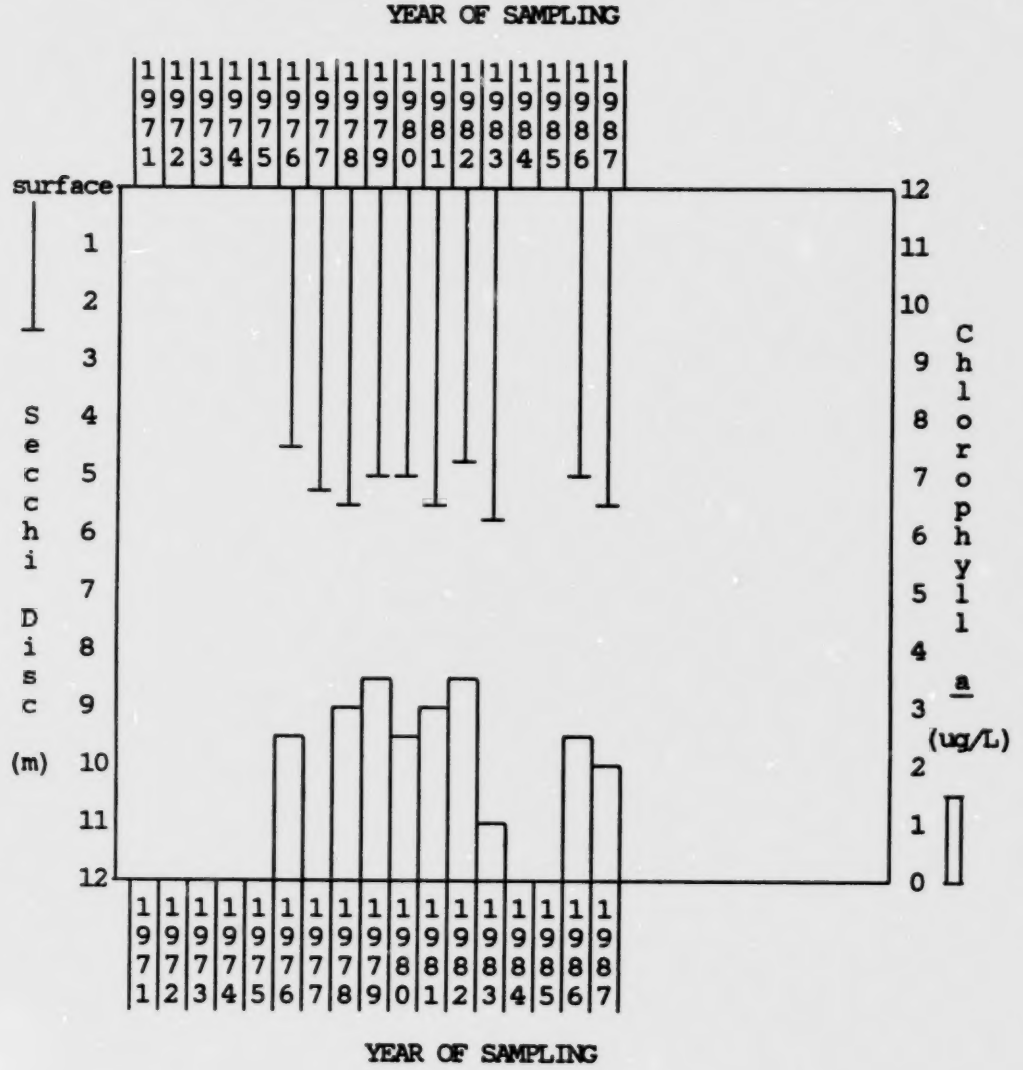


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Kawagama Lake (Fishpole Point). Averages based on fewer than 4 points were considered unreliable and were not graphed.

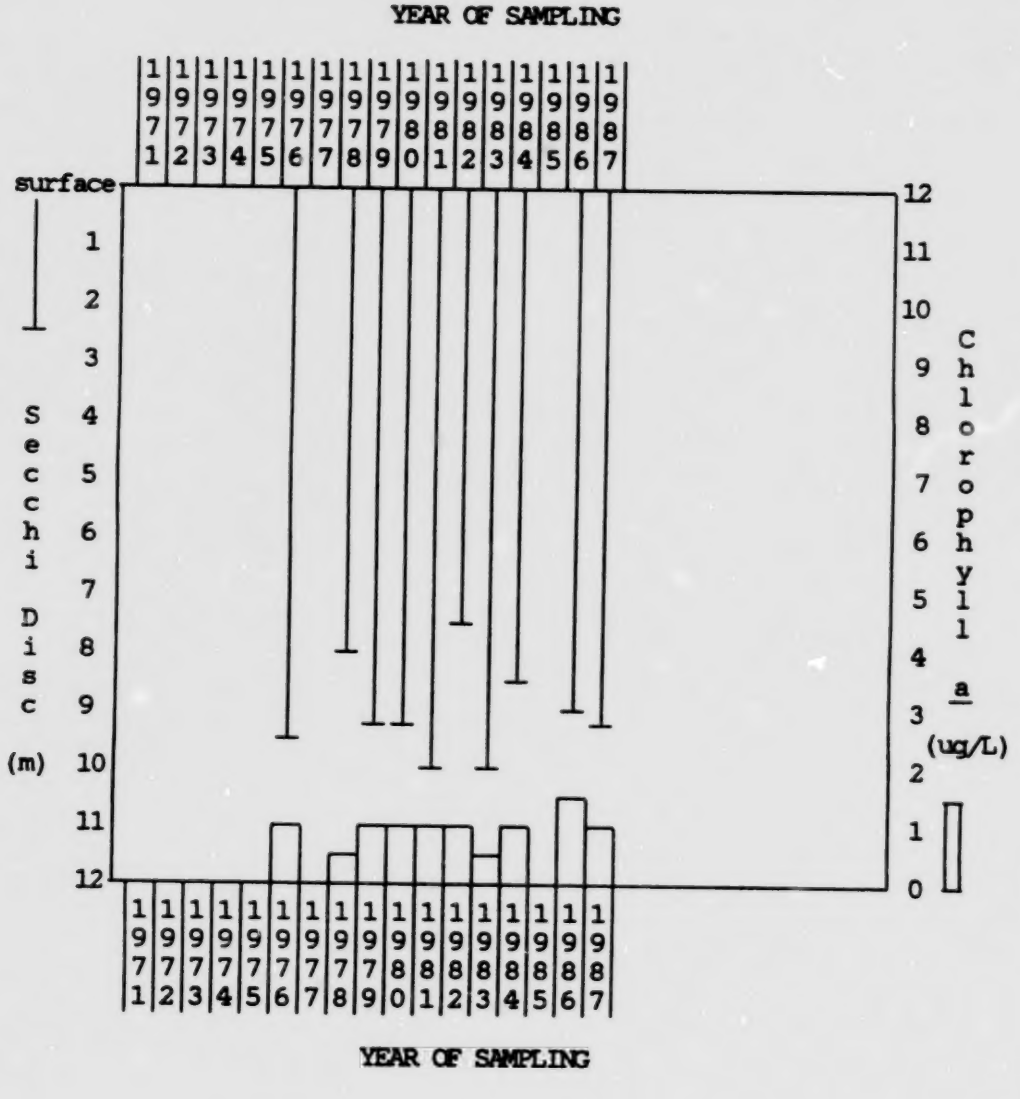


Figure 4 : Historical record of average Secchi disc and chlorophyll a results for Kawagama Lake (North Shore). Averages based on fewer than 4 points were considered unreliable and were not graphed.

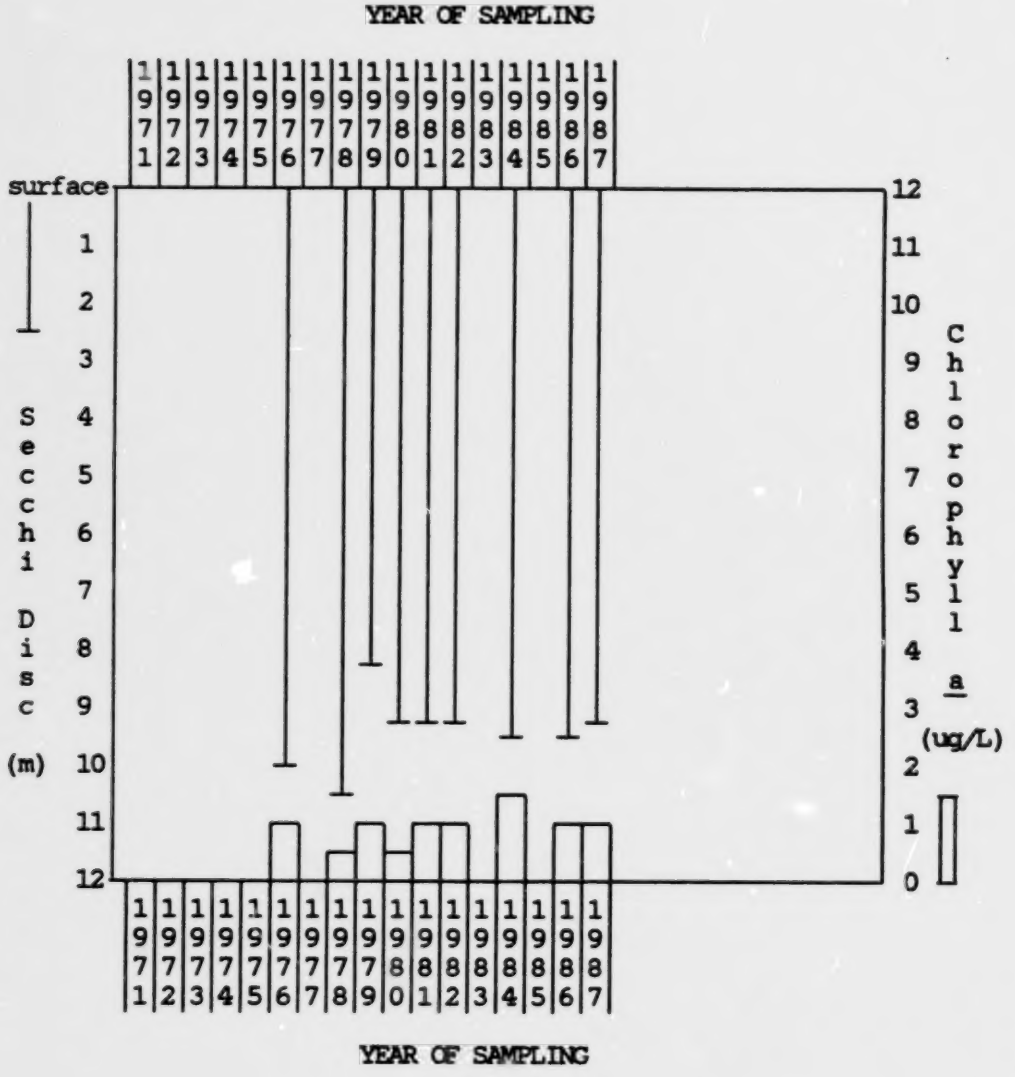
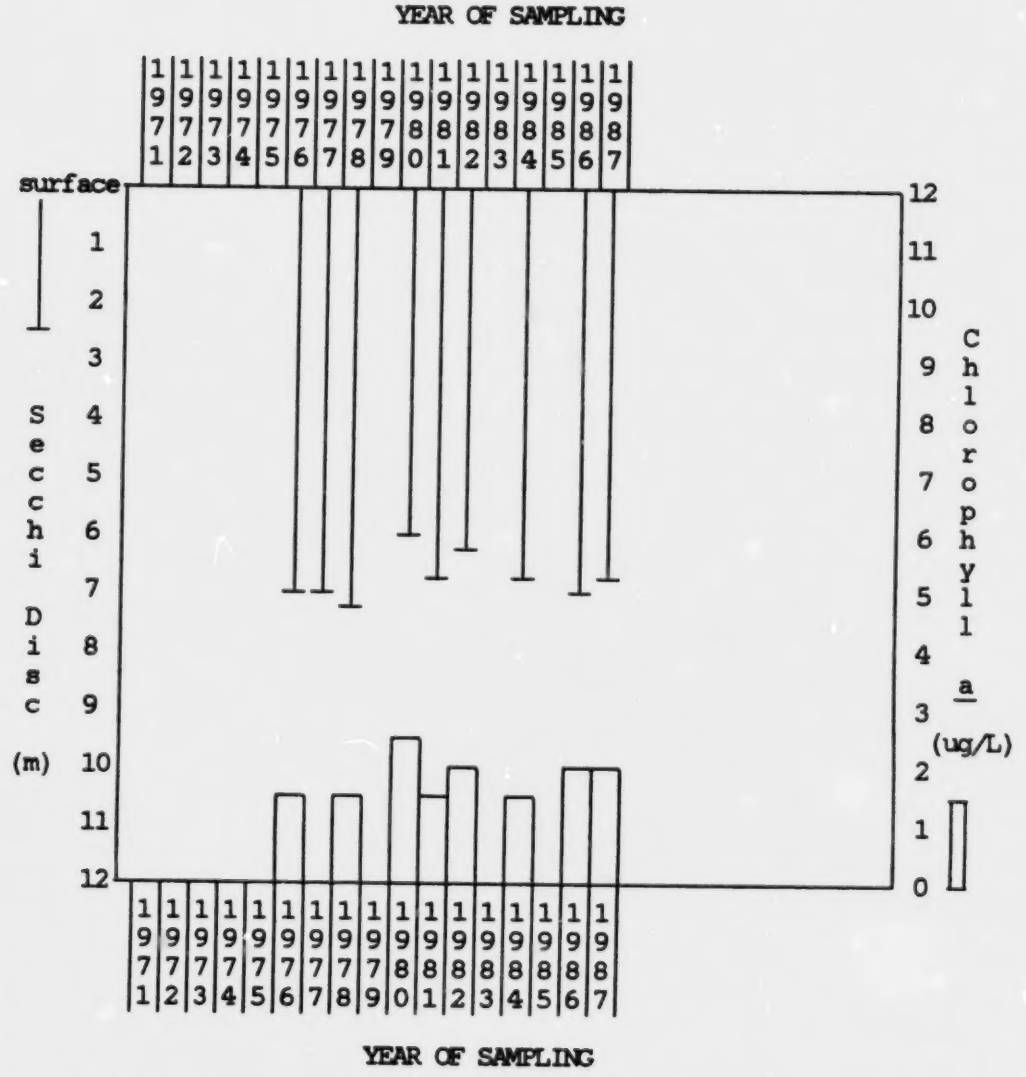


Figure 5 : Historical record of average Secchi disc and chlorophyll a results for Kawagama Lake (Fletcher Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




The water quality conditons of Kawagama Lake have not changed appreciably since 1976 when data were first collected. The North Shore and Fishpole Point stations are typical of nutrient unenriched conditions with excellent water quality. Minden and Fletcher Bays show some signs of nurient enrichment with a lesser degree of water transparency and higher concentrations of suspended algae.

**KENNISIS LAKE**

**HAVELOCK & GUILFORD TOWNSHIPS**

**COUNTY OF HALIBURTON**

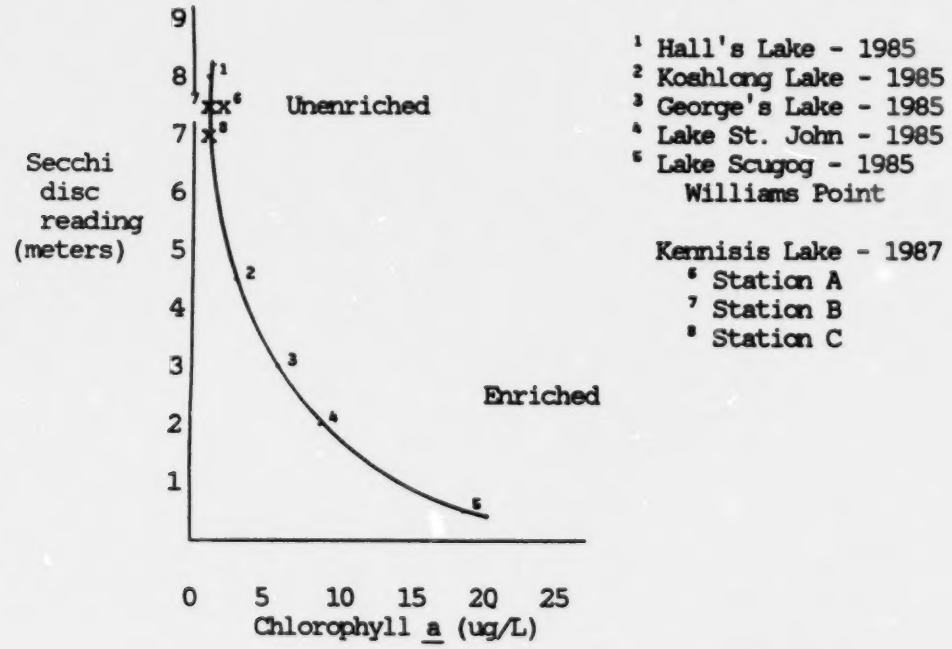
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Kennisis Lake in 1987.

| Station | A | | B | | C | |
|---|---|---|---|---|---|---|
| | North End | | Big Kennisis Pt. | | Big Kennisis Pt. | |
| Date | S.D. | Chl.a | S.D. | Chl.a* | S.D. | Chl.a* |
| May 7 | - | - | 8.0 | 0.7 | 8.0 | 0.7 |
| Jul 5 | 9.5 | 1.1 | - | - | - | - |
| Jul 9 | - | 1.8 | 7.0 | 1.5 | 7.5 | 1.7 |
| Jul 19 | 6.5 | 1.1 | 8.0 | 0.9 | 7.0 | 0.9 |
| Aug 3 | 8.0 | 2.4 | 7.0 | 1.3 | 6.4 | 1.1 |
| Aug 9 | - | - | 7.0 | 1.3 | 5.0 | 1.2 |
| Aug 30 | 6.0 | 1.6 | - | - | - | - |
| | 7.5 | 1.6 | 7.4 | 1.1 | 6.8 | 1.1 |

* depth of chlorophyll a sampling is unknown or was not through 2x the sampling depth.

(For text, see next page.)

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Kennisis Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.



The water quality data collected in the summer of 1987 indicated that Kennisis Lake was unenriched with excellent water quality. Water clarity was high with average Secchi disc readings ranging from 6.8 to 7.5 m at the three stations. Average chlorophyll a concentrations were low, ranging from 1.1 to 1.6 ug/L, indicating that densities of algae suspended in the lake water were low. To obtain more reliable averages in the future, sampling should be conducted on at least six occasions during the summer, if possible, and water samples for chlorophyll a determinations should be collected through the column of water from the surface to 2x the Secchi depth where possible.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Kennisis Lake (Station A). Averages based on fewer than 4 points were considered unreliable and were not graphed.

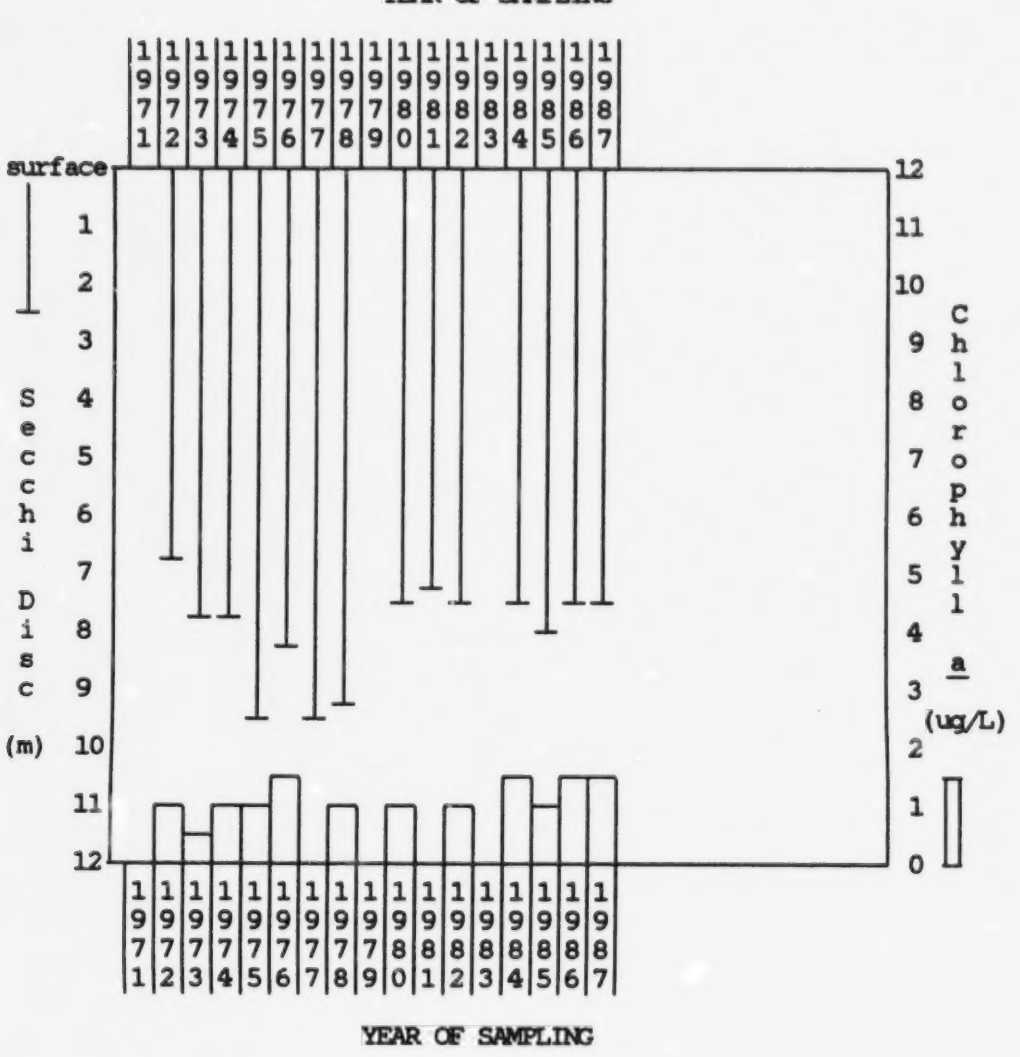


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Kennisis Lake (Station B). Averages based on fewer than 4 points were considered unreliable and were not graphed.

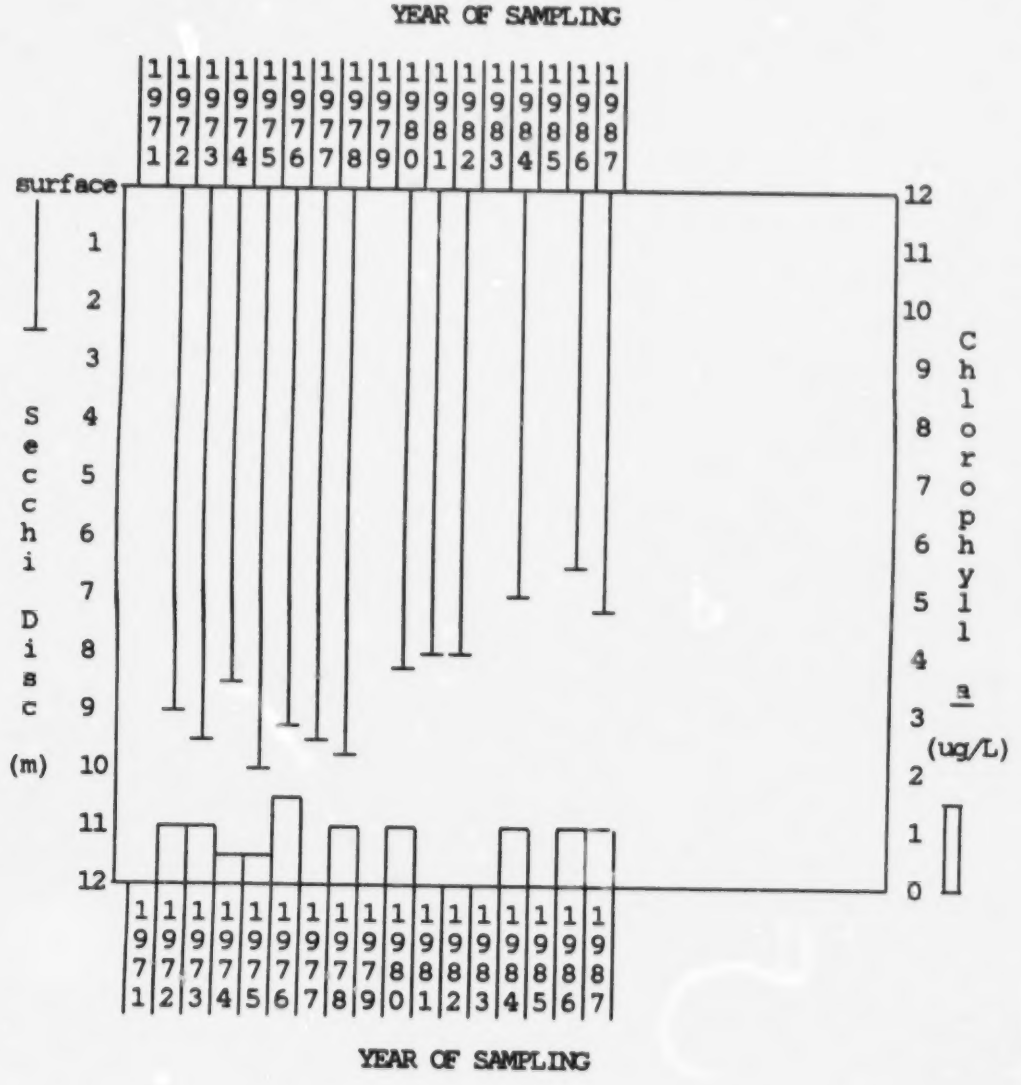
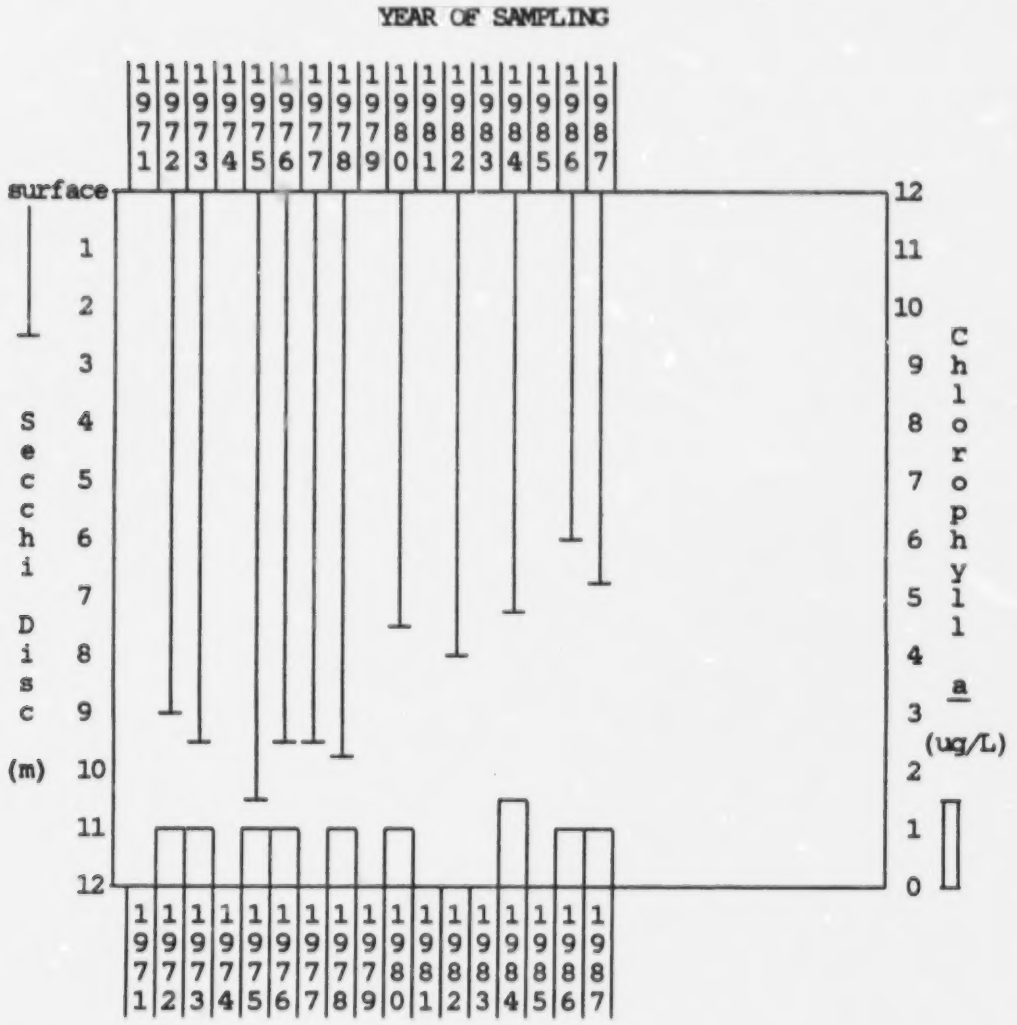


Figure 4 : Historical record of average Secchi disc and chlorophyll *a* results for Kennisis Lake (Station C). Averages based on fewer than 4 points were considered unreliable and were not graphed




Kennisis Lake, sampled since 1972, is maintaining a nutrient unenriched status. Although there appears to have been some decline in water transparency since 1978, it has not occured because of an increase in suspended algae; chlorophyll *a* concentrations have remained essentially the same since 1972. All three stations have similar water quality. Future sampling may help to elucidate the apparent decline in water transparency.

KOSHLONG LAKE

GLAMORGAN TOWNSHIP

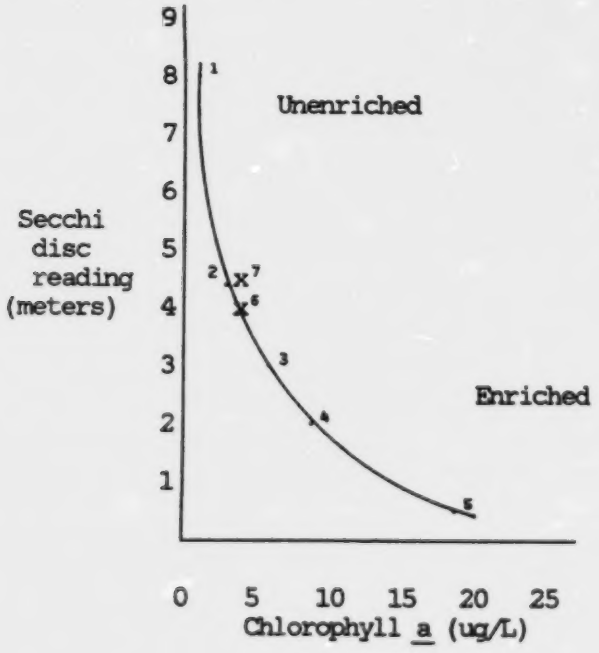
COUNTY OF HALIBURTON

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Koshlong Lake in 1987.

| Station | Gains Point | | W. Wallace Is. | |
|---|---|---|---|---|
| Date | S.D. | Chl.*a* | S.D. | Chl.*a* |
| May 18 | 4.0 | 5.1 | 4.0 | 1.9 |
| May 31 | 3.1 | 4.9 | 4.0 | 4.0 |
| Jun 14 | 4.0 | 5.2 | 3.5 | 6.0 |
| Jun 28 | 2.5 | 3.1 | 4.3 | 5.3 |
| Jul 12 | 5.0 | - | 6.0 | - |
| Jul 26 | 4.3 | 6.3 | 4.5 | 4.0 |
| Aug 3 | 4.2 | 3.1 | 6.0 | 3.8 |
| Aug 9 | 4.3 | 2.6 | 4.0 | 3.6 |
| Sep 7 | 5.5 | 1.3 | 4.5 | 1.9 |
| | 4.1 | 4.0 | 4.5 | 3.8 |

An excellent sampling program in the summer of 1987 indicated that Koshlong Lake was in a moderately enriched nutrient condition. The degree of water clarity, as indicated by the Secchi disc readings, varied from being relatively low (2.5 m) to high (6.0 m) and averaged 4.1 and 4.5 m at the two stations. Average chlorophyll *a* concentrations varied from 3.8 to 4.0 ug/L and indicated that suspended algal densities were moderate.

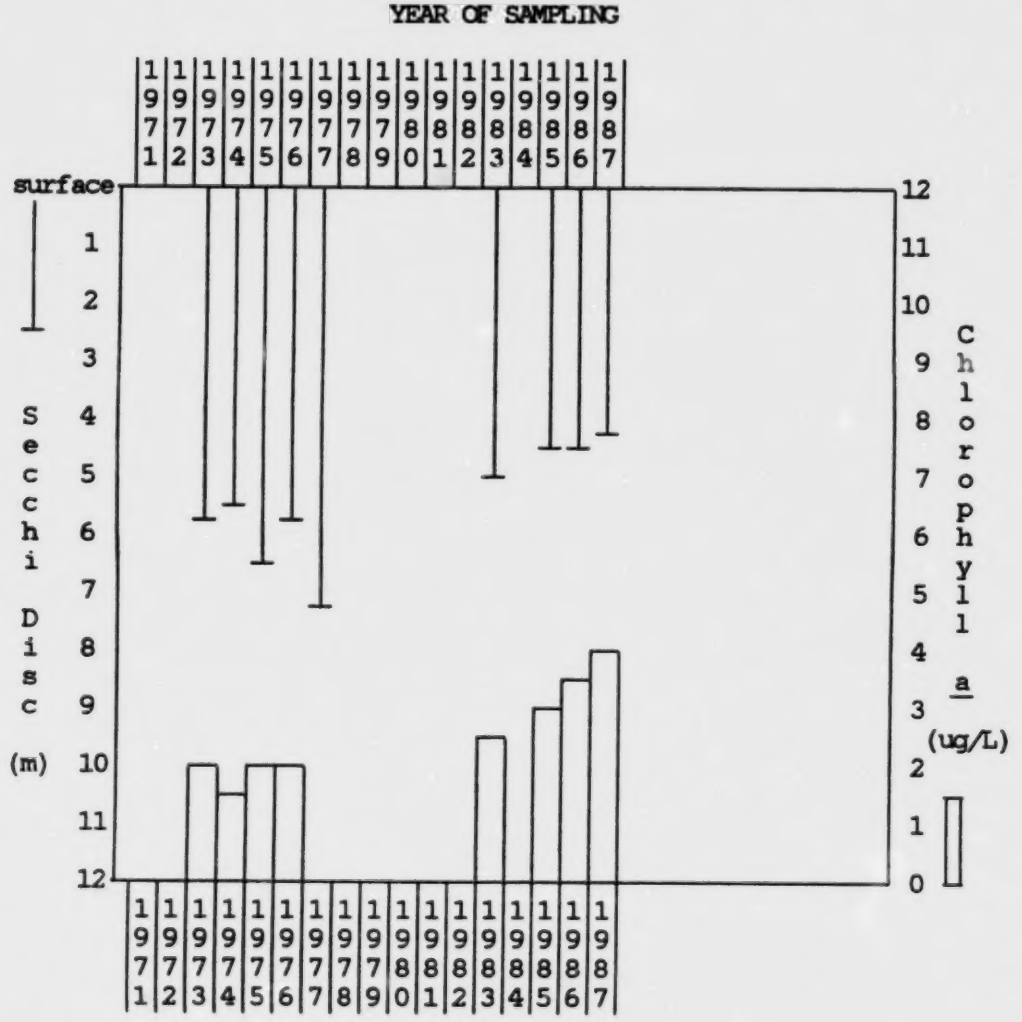
FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Koshlong Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point

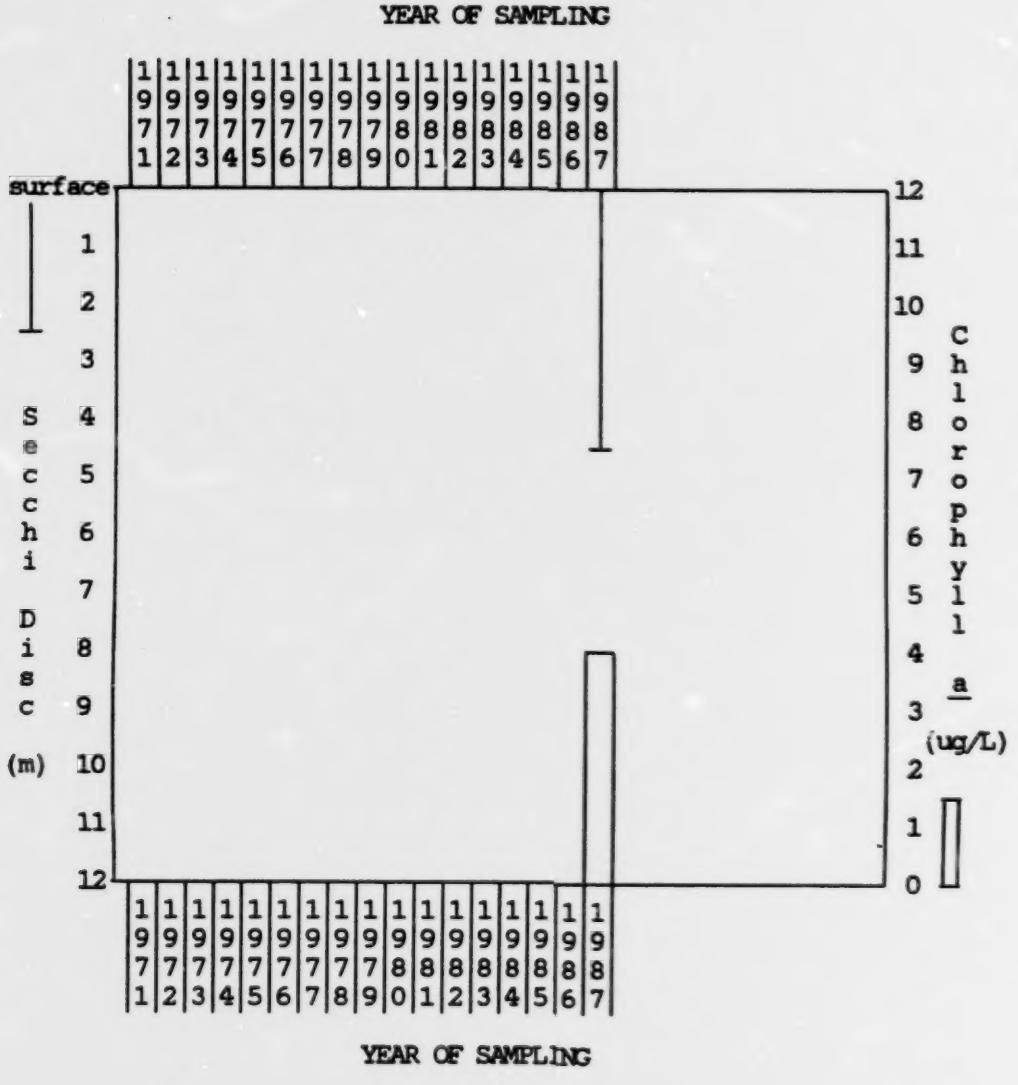
Koshlong Lake - 1987
[6]Gains Point
[7]Umbrella Is.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Koshlong Lake (Central station and Gains Point). Averages based on fewer than 4 points were considered unreliable and were not graphed.




From 1973 to 1983 sampling took place at a central station; since that time, sampling has taken place at Gains Point. The difference in sampling locations makes it difficult to interpret variations in the chlorophyll a concentrations and Secchi depths. However, it would appear that Koshlong Lake is maintaining a moderately enriched nutrient status.

Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Koshlong Lake (West Wallace Island). Averages based on fewer than 4 points were considered unreliable and were not graphed.



**KUSHOG LAKE**

**STANHOPE TOWNSHIP**

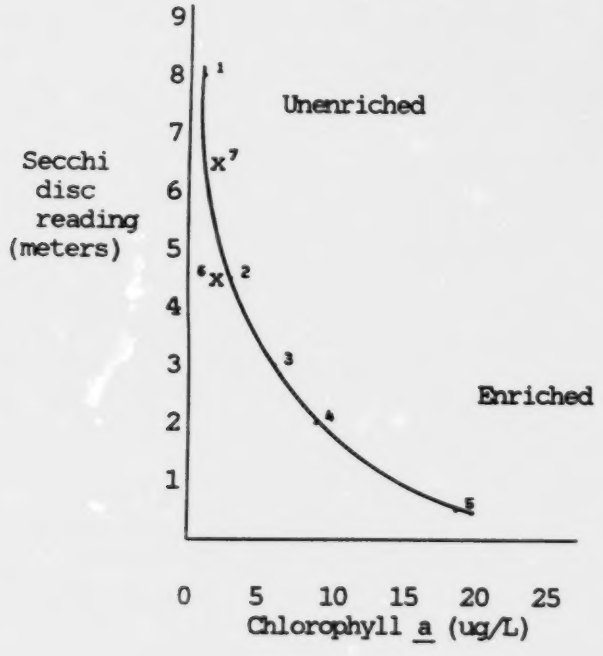
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Kushog Lake in 1987.

| Station | Fraser's Bay | | North End | |
|---|---|---|---|---|
| Date | S.D. | Chl.*a* | S.D. | Chl.*a* |
| Jul 12 | 4.3 | 2.4 | 7.0 | 0.8 |
| Jul 19 | 4.1 | 2.1 | 6.25 | 1.8 |
| Jul 26 | 5.5 | 2.3 | 6.3 | 1.8 |
| Aug 14 | 4.5 | 1.9 | 6.0 | 1.5 |
| Aug 30 | 4.3 | 1.8 | 6.0 | 2.2 |
| Sep 6 | 3.75 | 1.5 | 6.5 | 1.6 |
| | 4.4 | 2.0 | 6.3 | 1.6 |

Kushog Lake was sampled on six occasions at two locations in the summer of 1987 providing an excellent set of water quality data on which to assess the lake's nutrient status. Based on these data the main body of Kushog Lake had excellent water quality and was unenriched with nutrients. Water clarity was high, particularly at the North End station; chlorophyll *a* concentrations were low indicating low densities of algae suspended in the lake water. Fraser's Bay demonstrated a greater degree of enrichment than the main body of the lake.

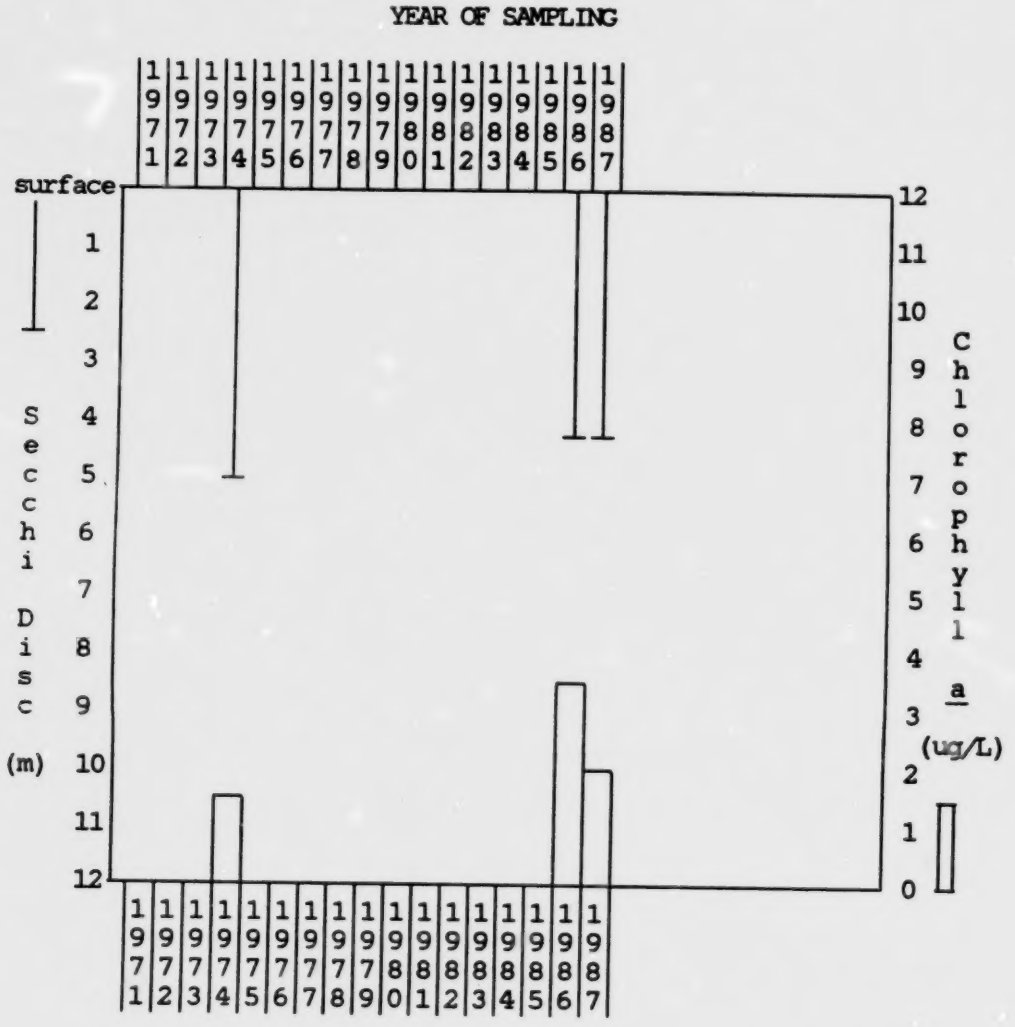
FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Kushog Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point

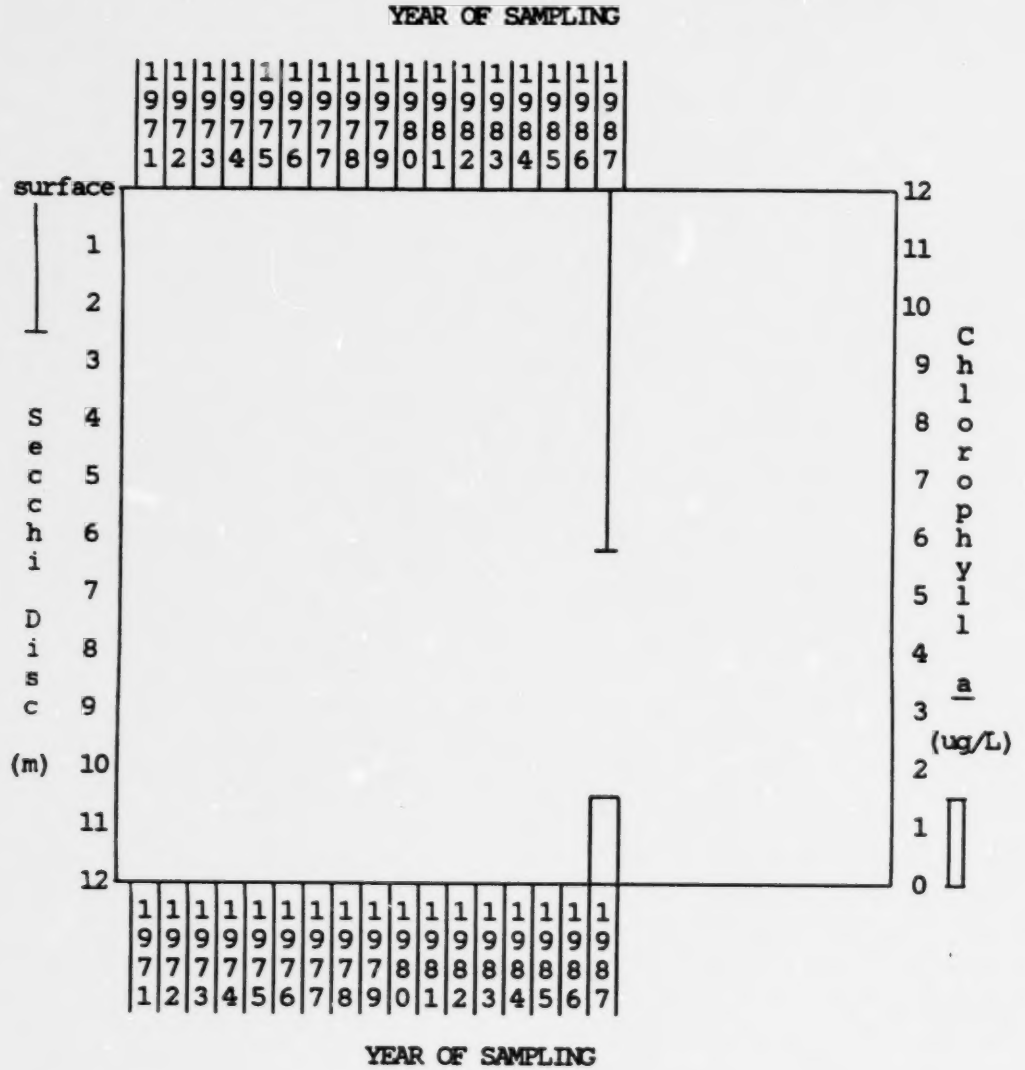
Kushog Lake - 1987
[6] Fraser's Bay
[7] North End

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Kushog Lake (Fraser's Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Data have been collected in too few years to allow identification of any trends in water quality of Kushog Lake. Fraser's Bay appears to be more enriched with nutrients than the North End station. However, this conclusion is based on only one year's observation and may not be reliable. We hope that sampling continues on Kushog Lake to establish a long-term record of water quality.

Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Kushog Lake (North End). Averages based on fewer than 4 points were considered unreliable and were not graphed.



**LAKE MUSKOKA**

**TOWNSHIP OF MUSKOKA LAKES**

**DISTRICT MUNICIPALITY OF MUSKOKA**

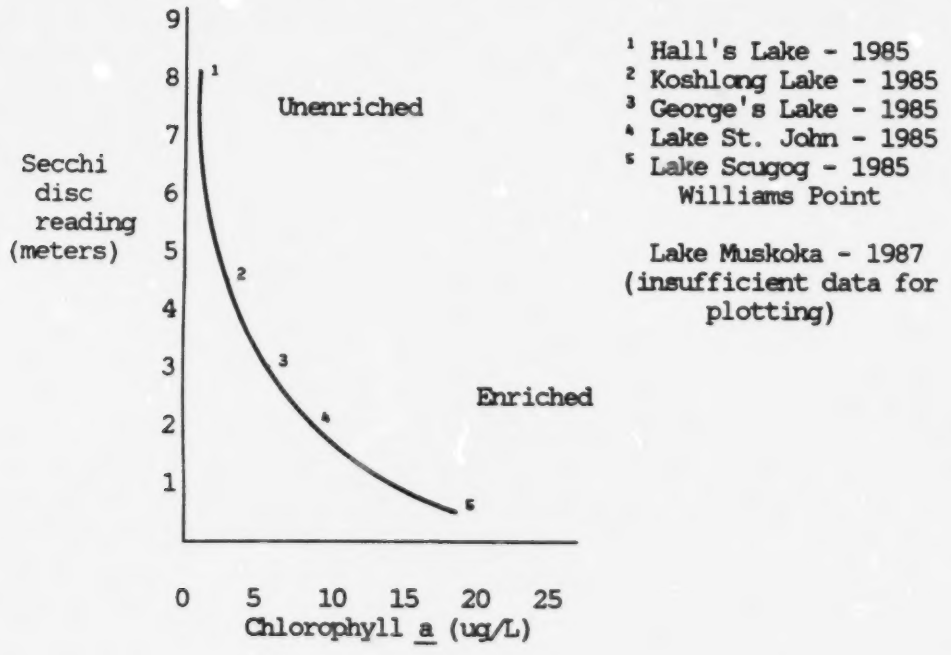
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake Muskoka in 1986.

| Station | Bala Bay | | Dudley Bay | | North Bay | |
|---|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | S.D. | Chl.a |
| Jul 4-5 | 3.0 | 1.5* | 2.4 | 1.6* | 3.0 | 1.2* |
| Sep. 6 | 5.5 | 1.7 | 5.5 | 1.8 | 5.0 | 2.8 |

* not sampled through 2x the Secchi depth.

Sampling should be conducted on at least six occasions over the summer to provide enough data to draw conclusions about a lake's nutrient status. Not enough sampling was conducted on Lake Muskoka in 1987 to make such an evaluation.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Lake Muskoka in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.



TOWNSHIP OF LAKE OF BAYS

DISTRICT MUNICIPALITY OF MUSKOKA

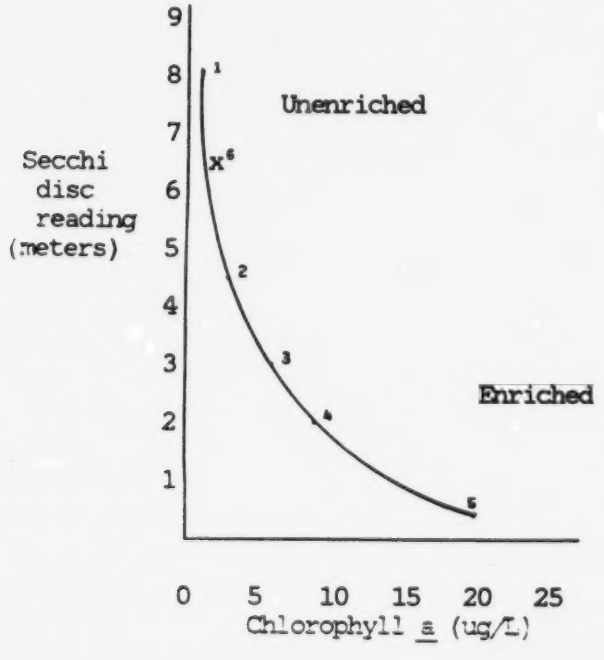
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake of Bays in 1987.

| Station | Trading Bay | | East Bigwin | | Haystack Bay | |
|---|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | S.D. | Chl.a |
| Jul 5 | 7.5 | 1.1 | 7.5 | 0.8 | 6.5 | 1.1 |
| Jul 19 | 7.5 | 1.5 | 6.75 | 1.5 | 7.5 | 2.4 |
| Aug 16 | - | - | 6.5 | 2.0 | 7.5 | 2.0 |
| Aug 30 | 5.5 | 3.7 | 6.0 | B.T. | 6.5 | B.T. |
| Sep 9 | 6.0 | - | - | - | - | - |
| Sep 12 | - | - | 5.5 | - | 6.0 | 2.3 |
| | 6.6 | - | 6.4 | - | 6.8 | 2.0 |

B.T. - sample broken in transit.

See attached page for text.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Lake of Bays in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Lake of Bays - 1987
[6] Haystack Bay

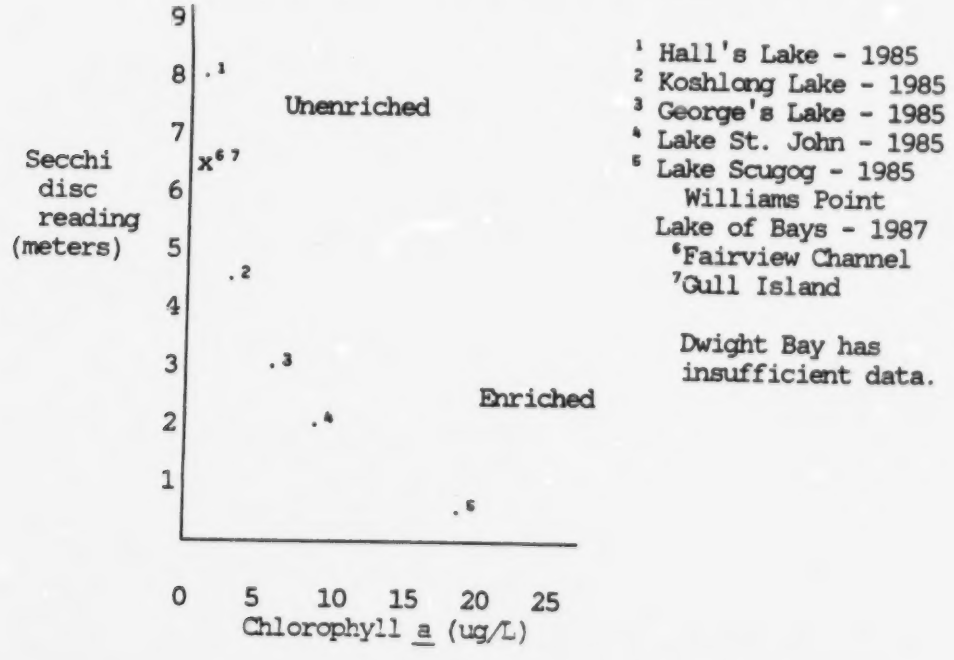
Trading Bay & East Bigwin have insufficient data.

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake of Bays in 1987.

| Station | Fairview Channel | | Gull Island | | Dwight Bay | |
|---|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | S.D. | Chl.a |
| Jul 5 | 7.5 | 1.1 | 6.5 | 0.9 | 6.0 | 1.4 |
| Jul 19 | 6.5 | 1.3 | 6.0 | 1.4 | 5.5 | 1.4 |
| Aug 15 | 6.0 | 2.4 | 6.5 | 2.1 | - | 2.2 |
| Aug 30 | - | - | 6.0 | 2.5 | - | - |
| Sep 9 | 7.0 | 1.9 | - | - | - | - |
| Sep 12 | - | - | 7.0 | 1.8 | 6.5 | 1.9 |
| | 6.8 | 1.7 | 6.4 | 1.7 | - | 1.7 |

See attached page for text.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Lake of Bays in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.



TOWNSHIP OF LAKE OF BAYS

DISTRICT MUNICIPALITY OF MUSKOKA

Samples were collected at six locations from Lake of Bays in 1987. Secchi disc readings were consistently high at all sampling locations, indicating a high degree of water clarity. Chlorophyll a concentrations were low at all stations, suggesting that algal densities were low. Water quality continues to be excellent in Lake of Bays, typical of unenriched lake conditions.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Lake of Bays (Trading Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.

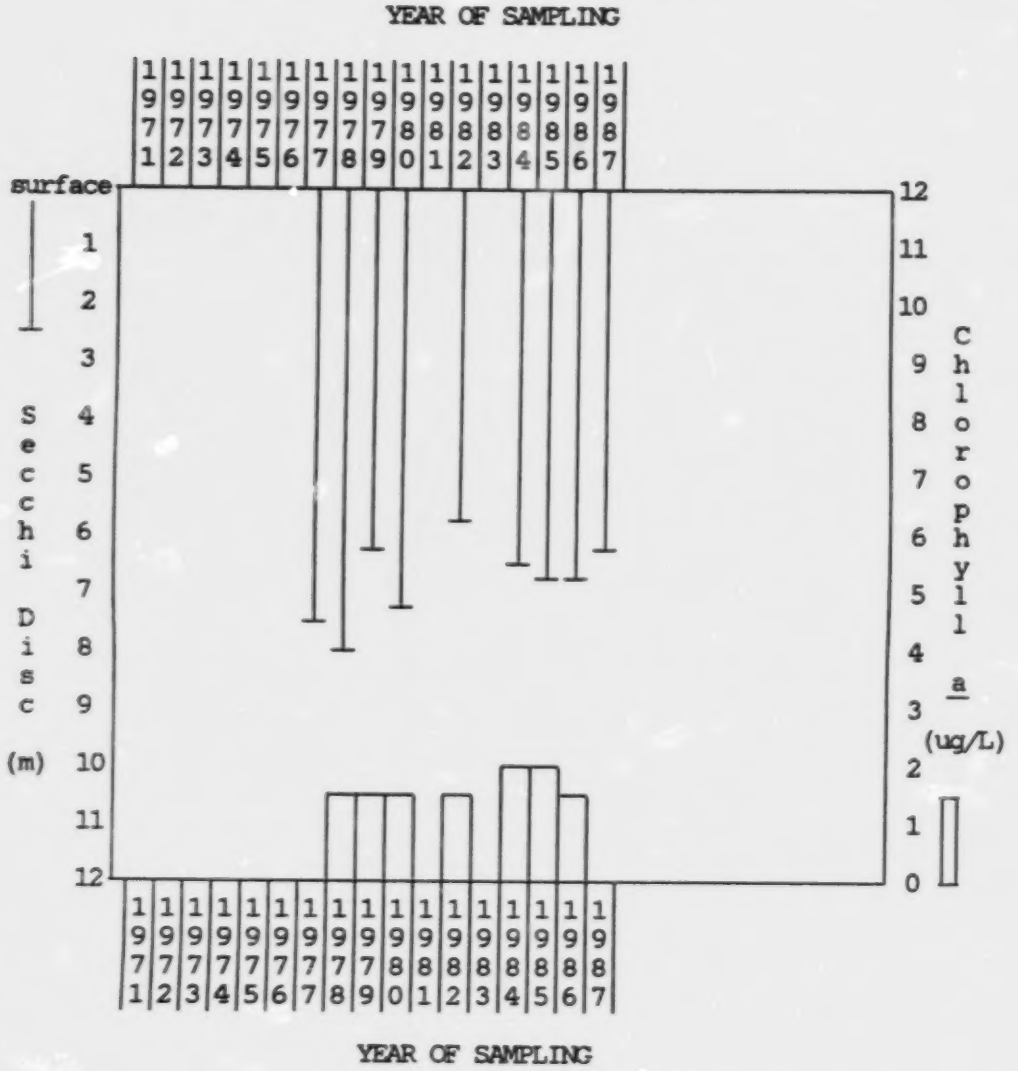


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Lake of Bays (East Bigwin). Averages based on fewer than 4 points were considered unreliable and were not graphed.

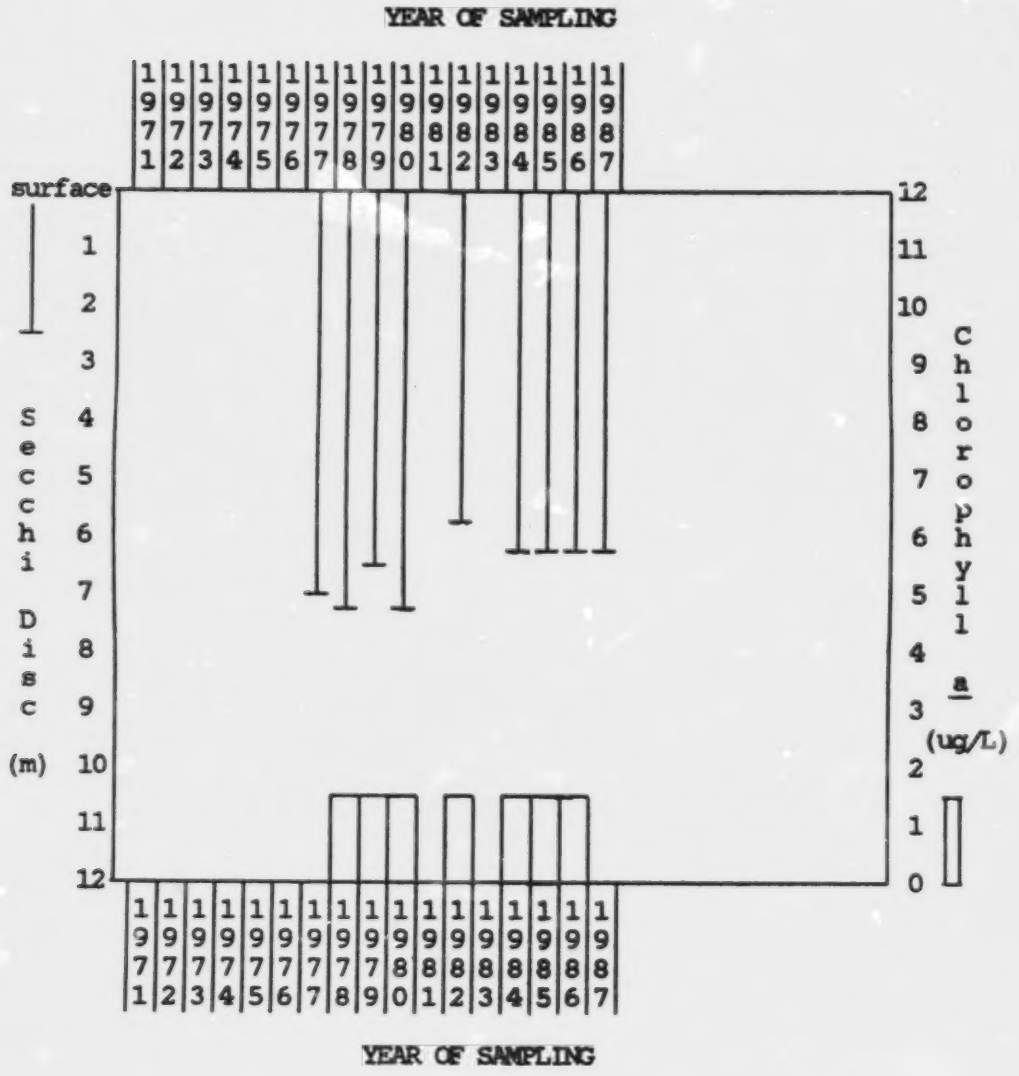


Figure 4 : Historical record of average Secchi disc and chlorophyll a results for Lake of Bays (Haystack Bay) Averages based on fewer than 4 points were considered unreliable and were not graphed.

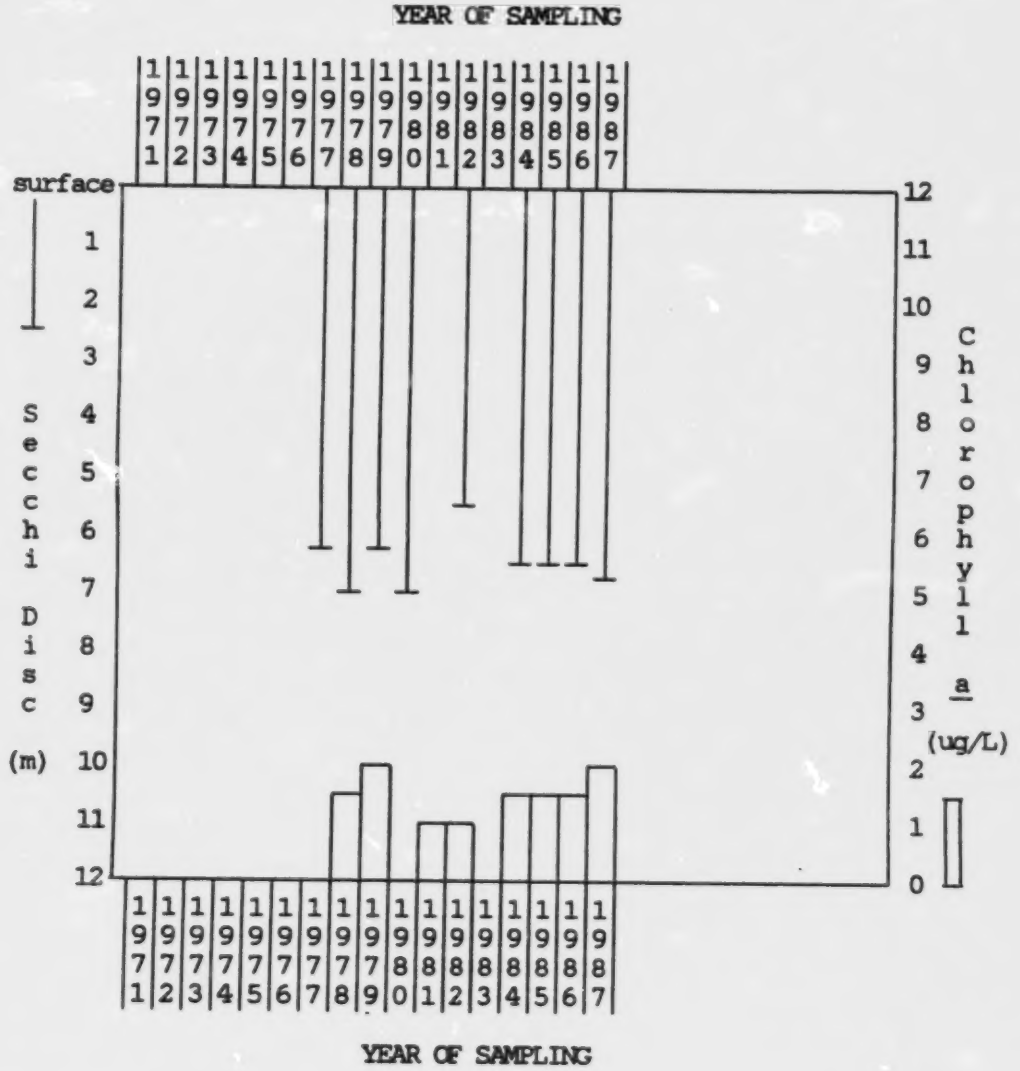


Figure 5 : Historical record of average Secchi disc and chlorophyll a results for Lake of Bays (Fairview Channel). Averages based on fewer than 4 points were considered unreliable and were not graphed.

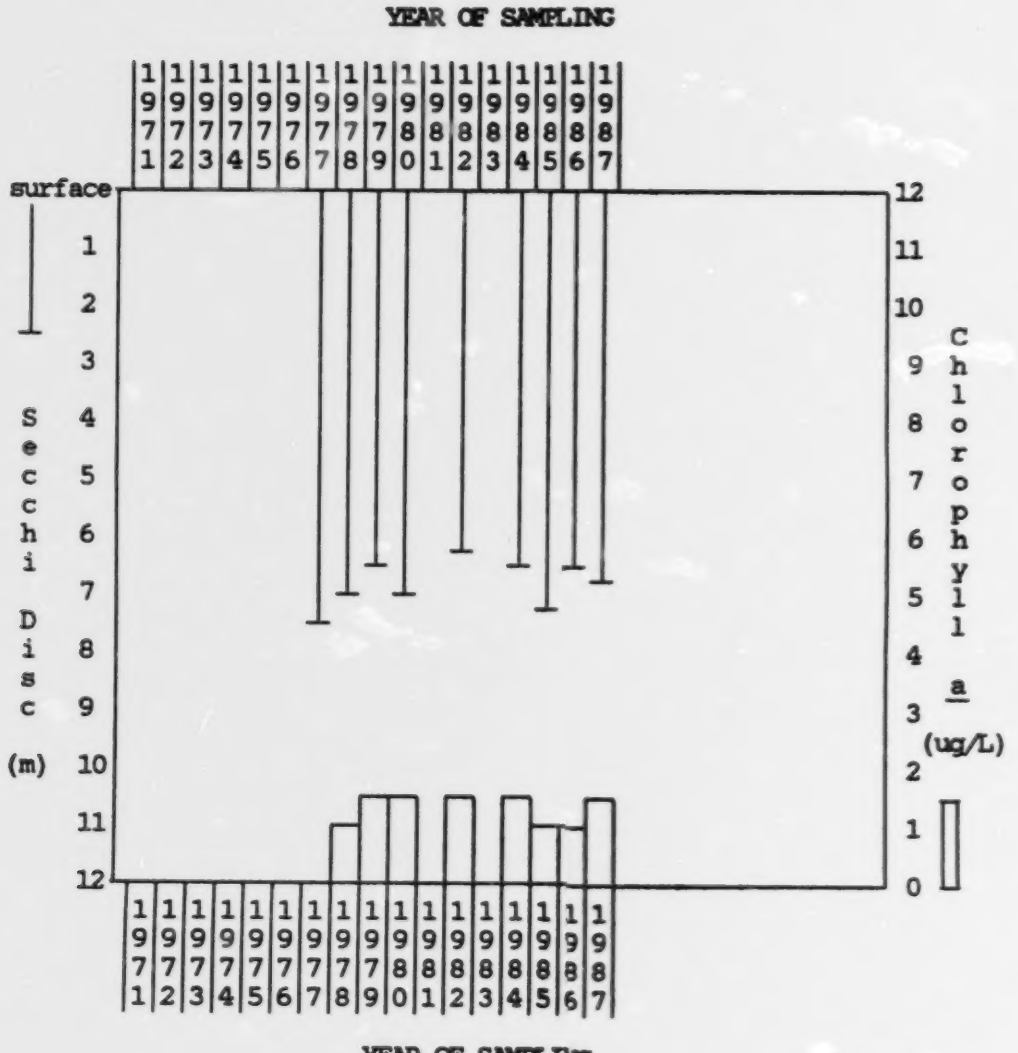


Figure 6 : Historical record of average Secchi disc and chlorophyll a results for Lake of Bays (Gull Island). Averages based on fewer than 4 points were considered unreliable and were not graphed.

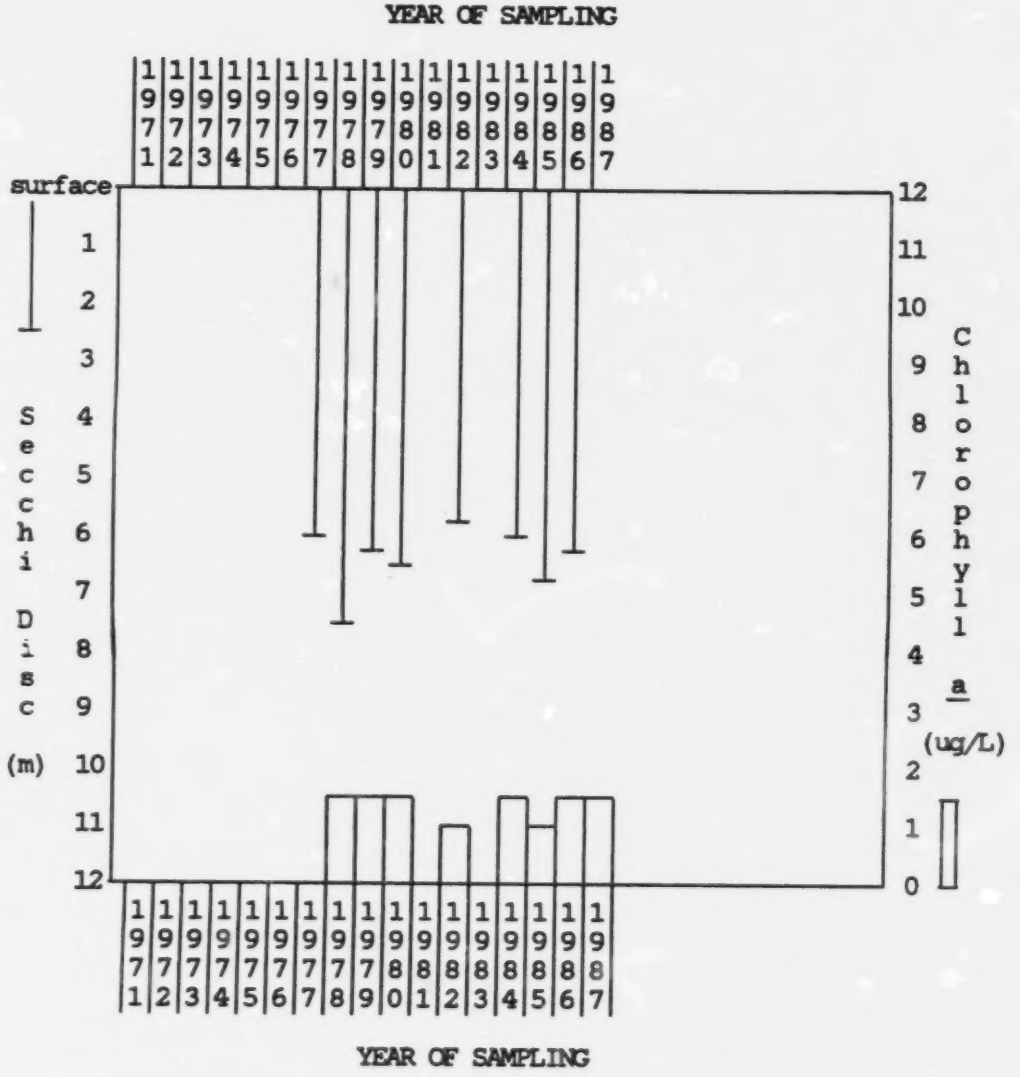
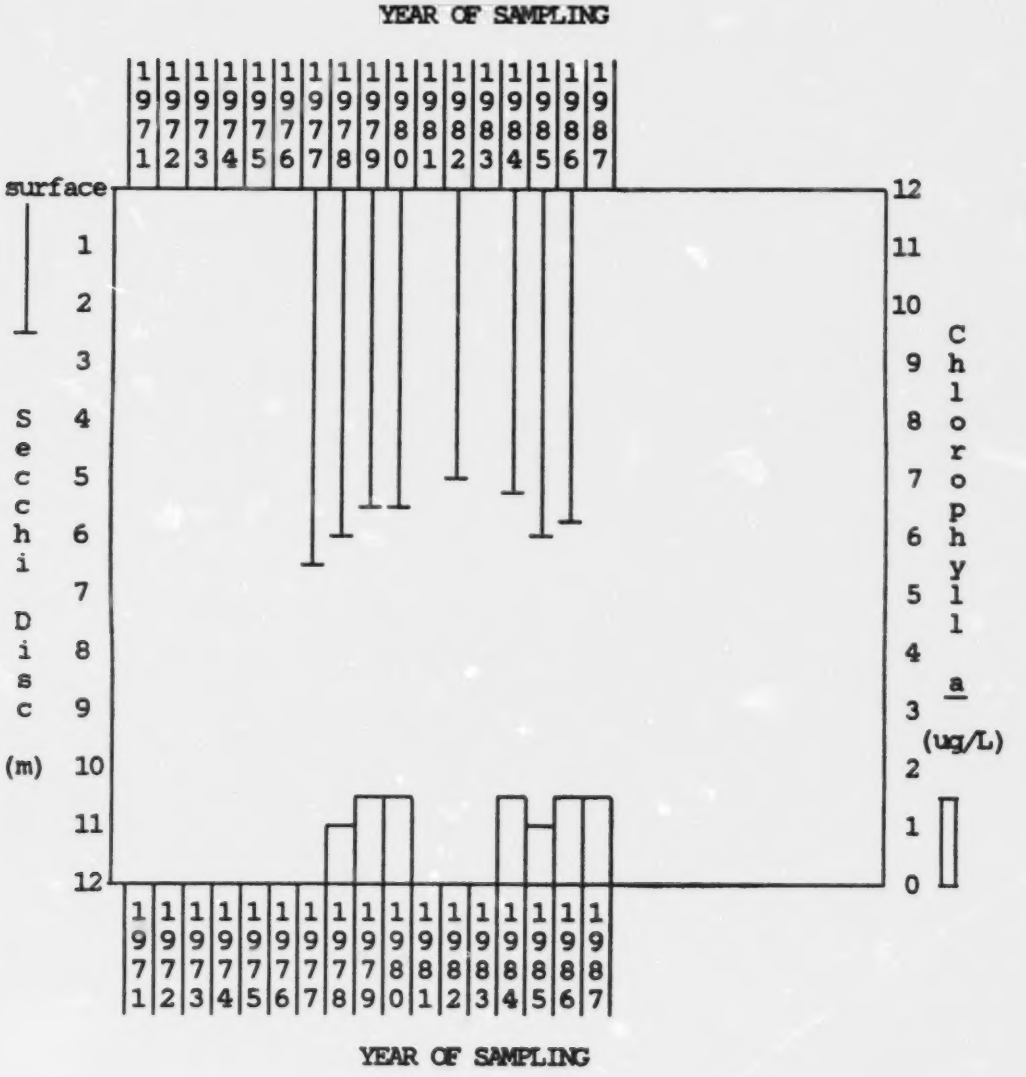


Figure 7 : Historical record of average Secchi disc and chlorophyll a results for Lake of Bays (Dwight Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




We now have an excellent record of water quality for the Lake of Bays with nine years of data from each of six sampling locations. Water quality has been consistently excellent throughout the period of record, with high secchi disc readings and low densities of suspended algae at all sampling locations.

LAKE ST. JOHN

RAMA TOWNSHIP

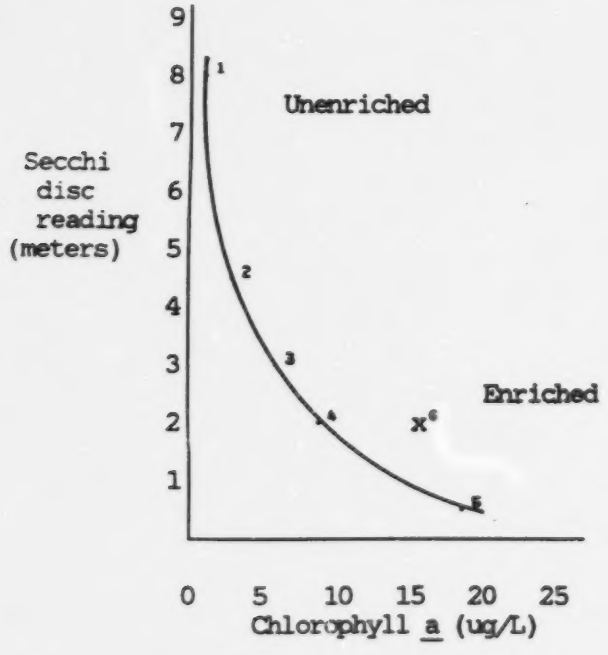
COUNTY OF SIMCOE

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Lake St. John in 1987.

| Station | North End | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 14 | 3.0 | 2.8 |
| Jun 29 | 2.5 | 2.9 |
| Jul 11 | 2.5 | 3.0 |
| Aug 8 | 1.0 | 35.8 |
| Aug 22 | 0.75 | 39.0 |
| Sep 7 | 1.0 | 9.5 |
| | 1.8 | 15.5 |

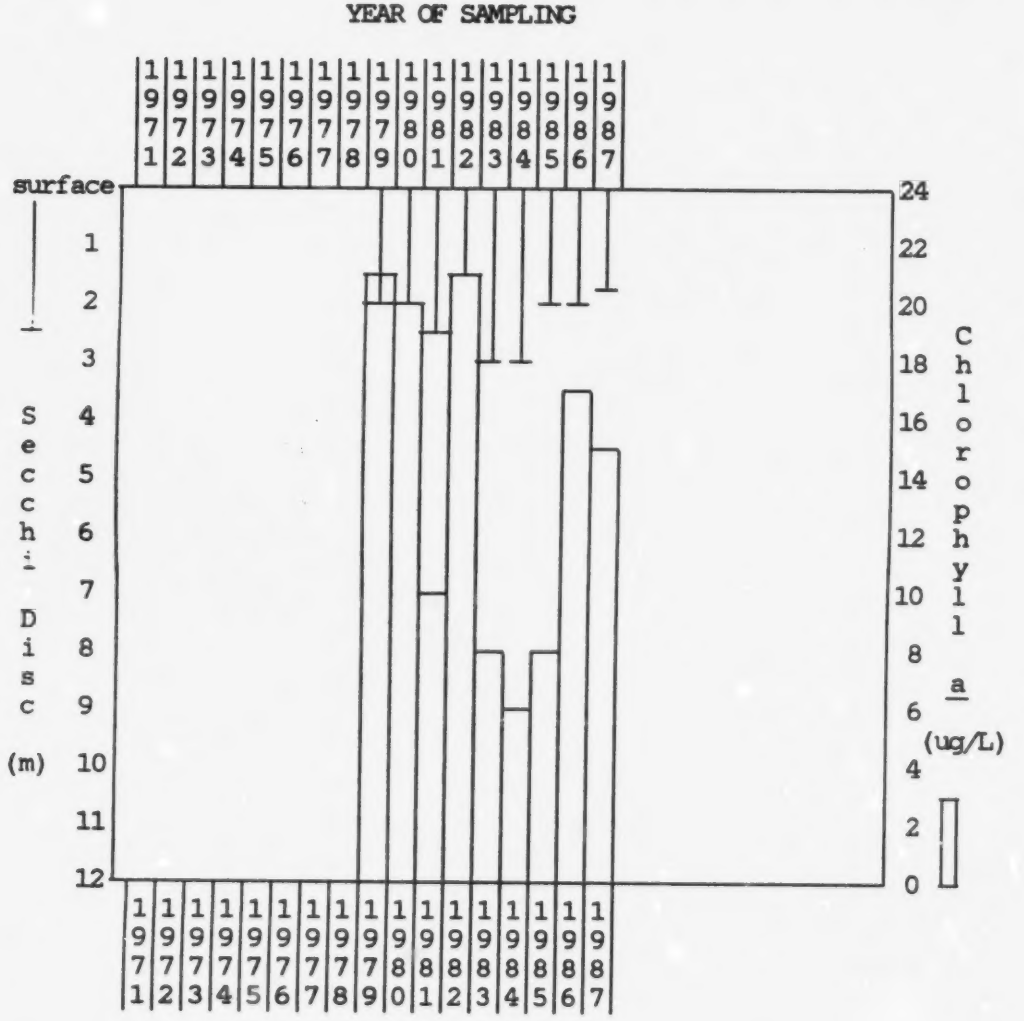
A good sampling program was again conducted on Lake St. John in 1987. Secchi disc readings ranged from 0.75 m to 3.0 m with a marked decrease in water clarity in August. Chlorophyll a concentrations showed a corresponding increase in August to a maximum of 39.0 ug/L. Lake St. John would be considered enriched, with algal blooms occurring in late summer.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Lake St. John in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




1 Hall's Lake - 1985
2 Koshlong Lake - 1985
3 George's Lake - 1985
4 Lake St. John - 1985
5 Lake Scugog - 1985 Williams Point
6 Lake St. John - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Lake St. John. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Nine years of water quality data are now available for Lake St. John. These data show that water clarity has been consistently low and algal densities, although variable, are generally high. These charcteristics indicate that Lake St. John is enriched and prone to having periodic algal blooms.

**LEECH LAKE**

**OAKLEY WARD**
**TOWN OF BRACEBRIDGE**

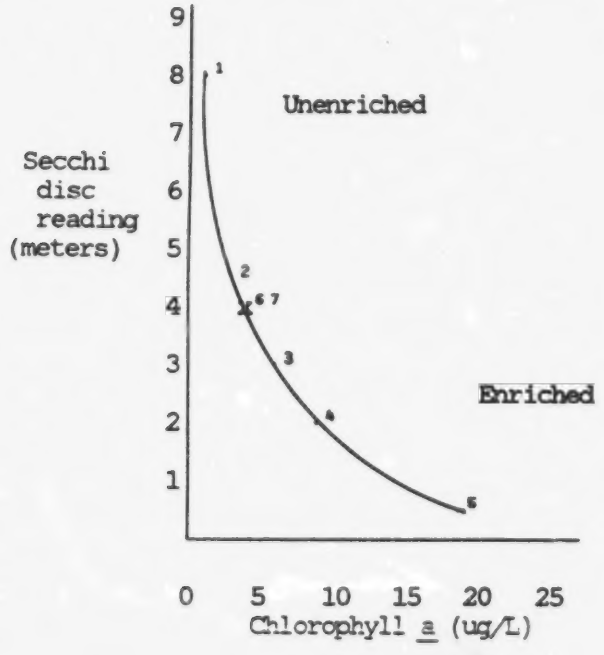
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Leech Lake in 1987.

| Station | North Bay | | East Bay | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 14 | 3.25 | 7.3 | 3.25 | 6.4 |
| Jul 5 | 4.0 | 2.8 | 3.75 | 3.5 |
| Jul 12 | 4.0 | 3.1 | 3.75 | 3.6 |
| Jul 18 | 3.75 | 3.4 | 3.75 | 3.5 |
| Jul 26 | 4.25 | 4.6 | 4.25 | 3.5 |
| Aug 3 | 4.5 | 1.9 | 5.0 | 1.9 |
| | 4.0 | 3.8 | 4.0 | 3.7 |

A good sampling program was undertaken on Leech Lake in 1987, with six samples collected between June 14 and August 3. Water clarity was moderately high, with secchi disc readings averaging 4.0 m at both sampling stations. Chlorophyll a concentrations were moderately high, with the highest algal densities occurring in June. Based on these results, Leech Lake would be considered moderately enriched to enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Leech Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koehlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Leech Lake - 1987
[6] North Bay
[7] East Bay

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Leech Lake (North Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.

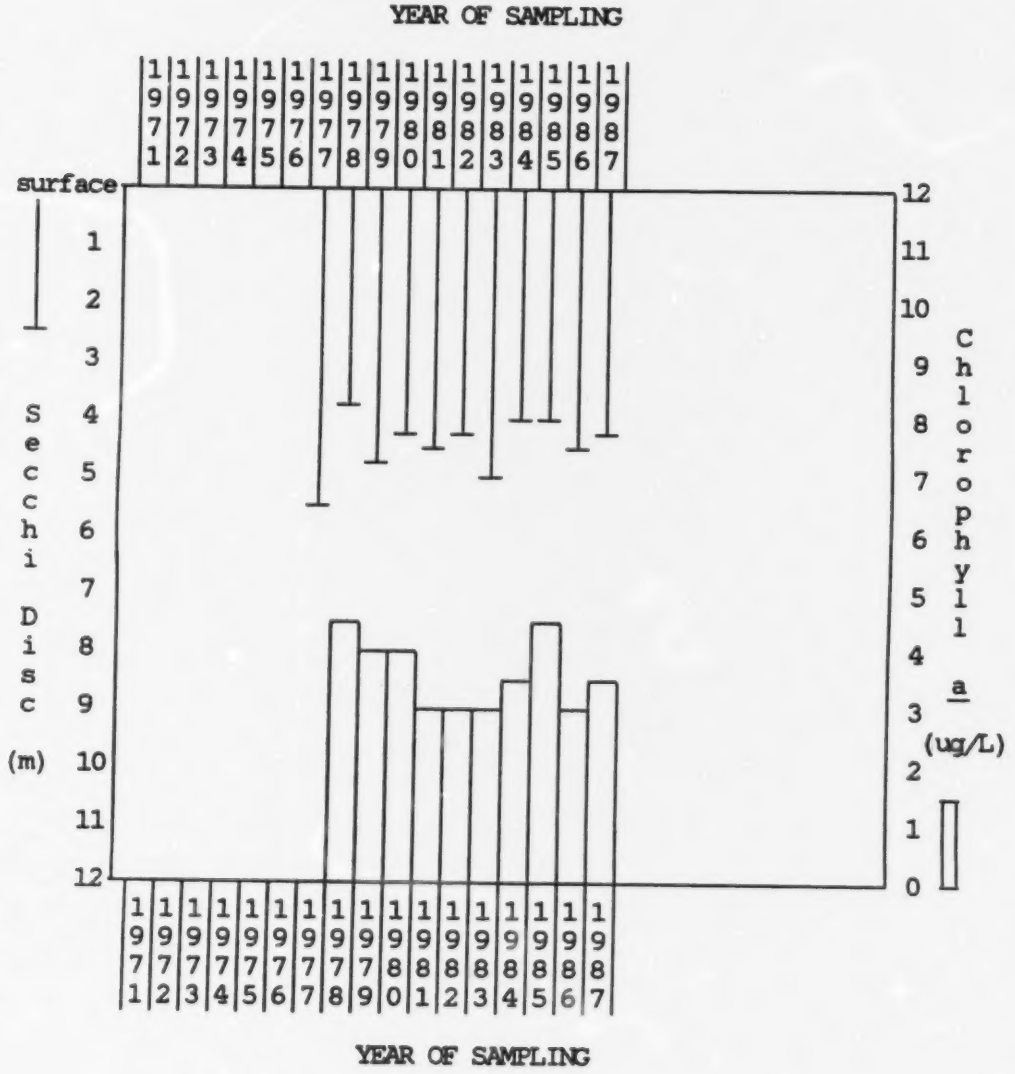
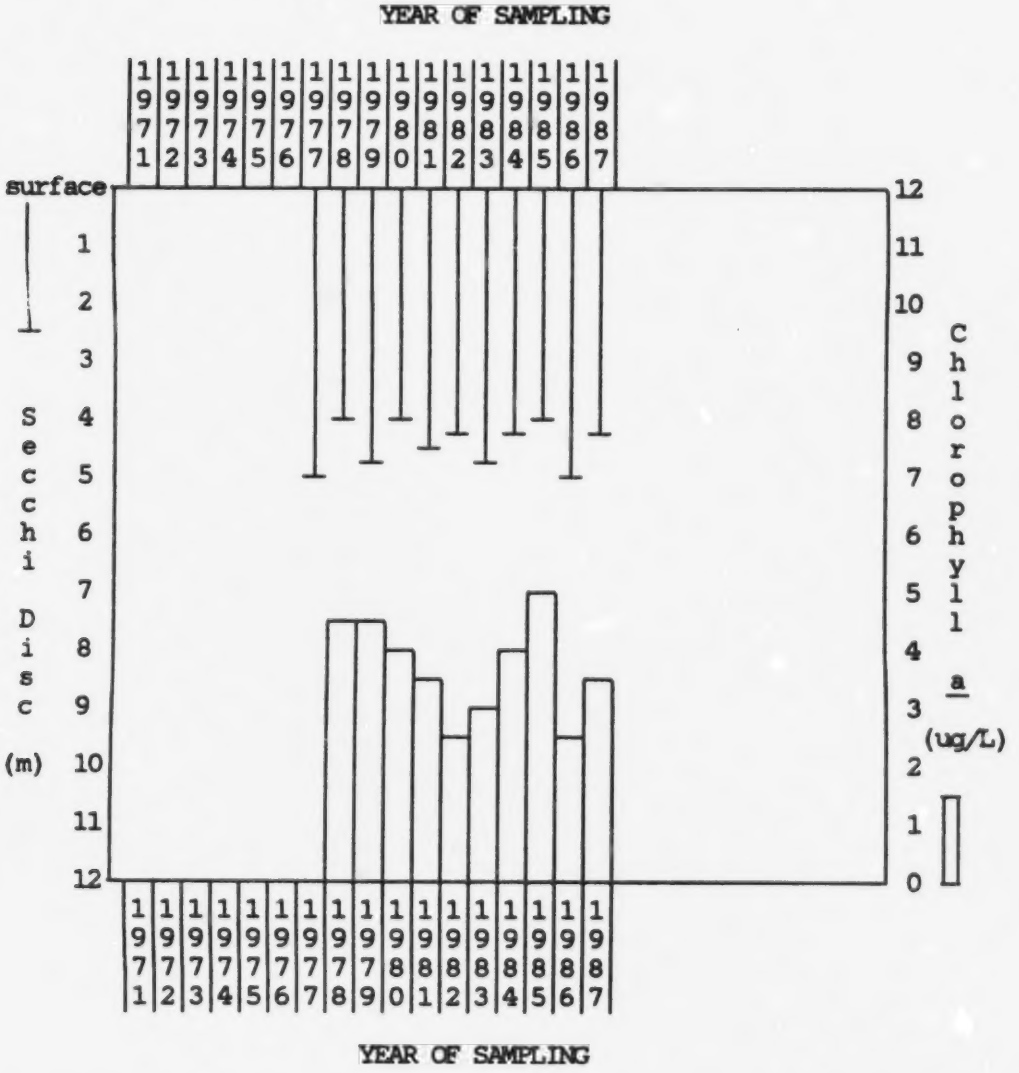


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Leech Lake (East Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




We now have eleven years of water quality data from both the North and East Bays of Leech Lake. Water clarity has been moderately high throughout this period of record. Densities of suspended algae, although variable, have been generally high.

LITTLE LAKE

WOOD WARD
TOWN OF GRAVENHURST

DISTRICT MUNICIPALITY OF
MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Little Lake in 1987.

| Station | West Basin | | East Basin | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 14 | 2.75 | 1.7 | 3.25 | 2.0 |
| Jul 5 | 2.75 | 1.6 | 3.25 | 1.6 |
| Jul 26 | 2.5 | 2.3 | 3.75 | 1.9 |
| Aug 16 | 2.75 | 2.6 | 3.75 | 9.4 |
| | 2.7 | 2.0 | 3.5 | 3.7 |

Insufficient sampling was done in 1987 to obtain definitive results. Based on the data obtained, Leech Lake would be considered moderately enriched to enriched. Water clarity was somewhat lower in the West Basin relative to the East Basin. There is an indication of increased algal densities in the East Basin in August. We recommend that, if possible, at least six samples be collected next year.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Little Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.

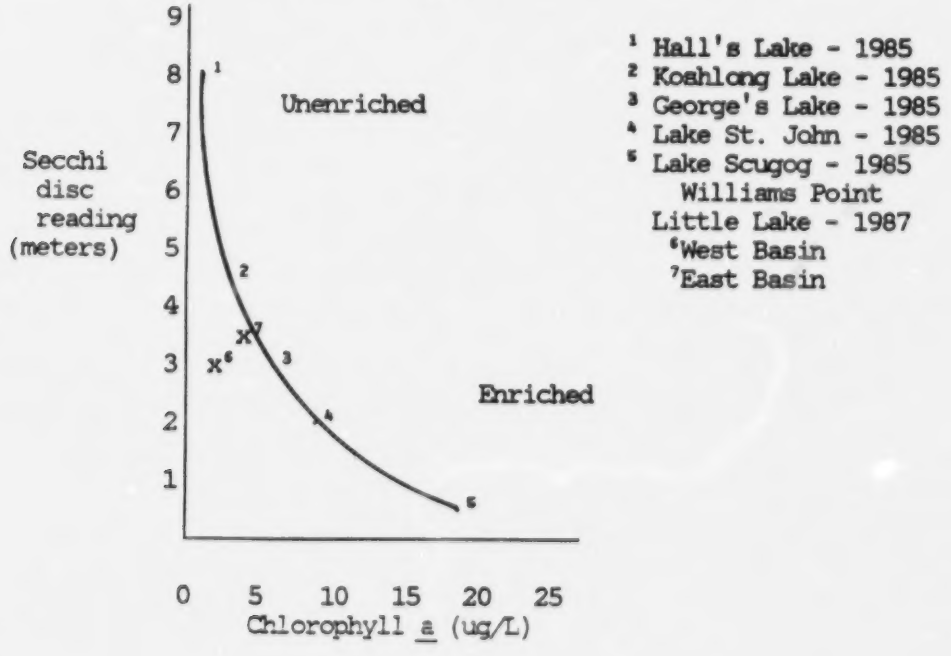


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Little Lake (East Basin). Averages based on fewer than 4 points were considered unreliable and were not graphed.

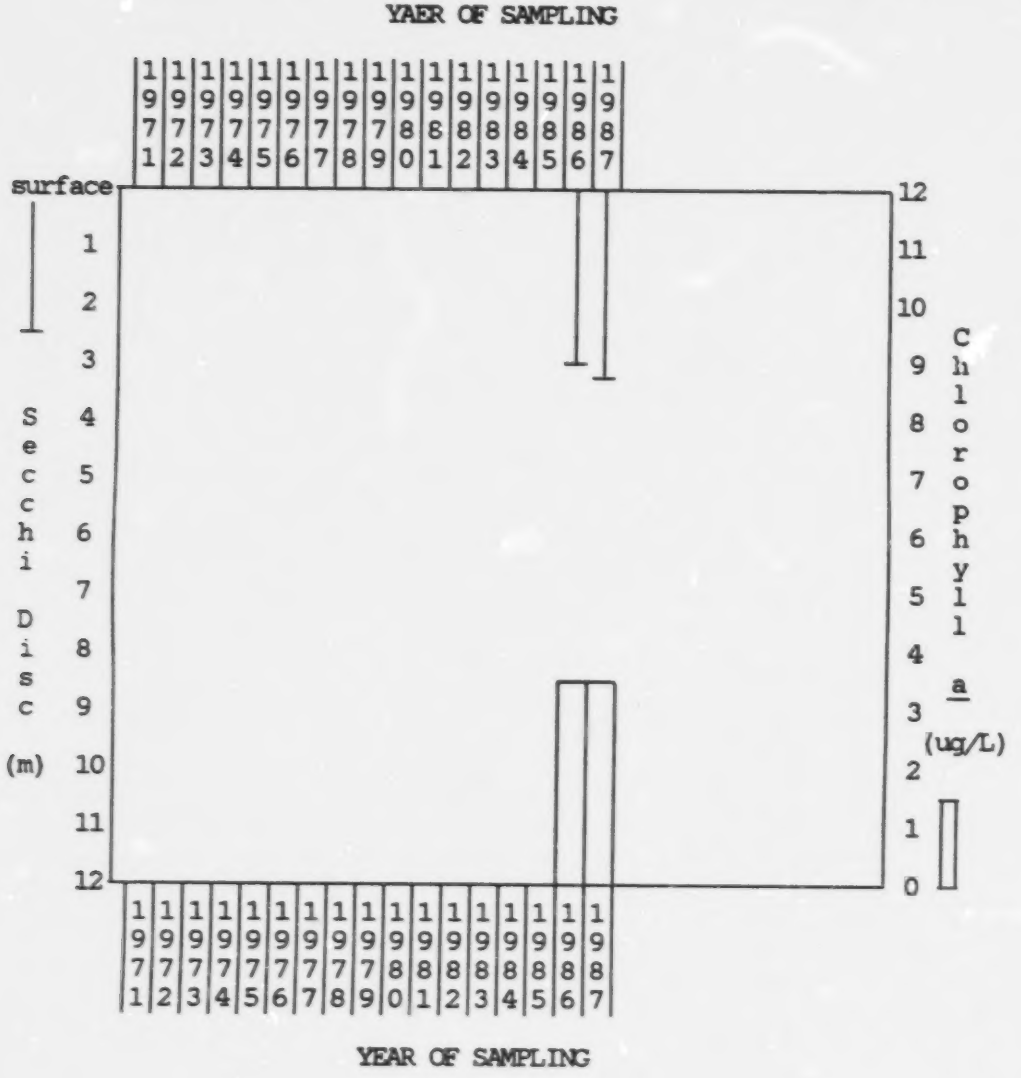
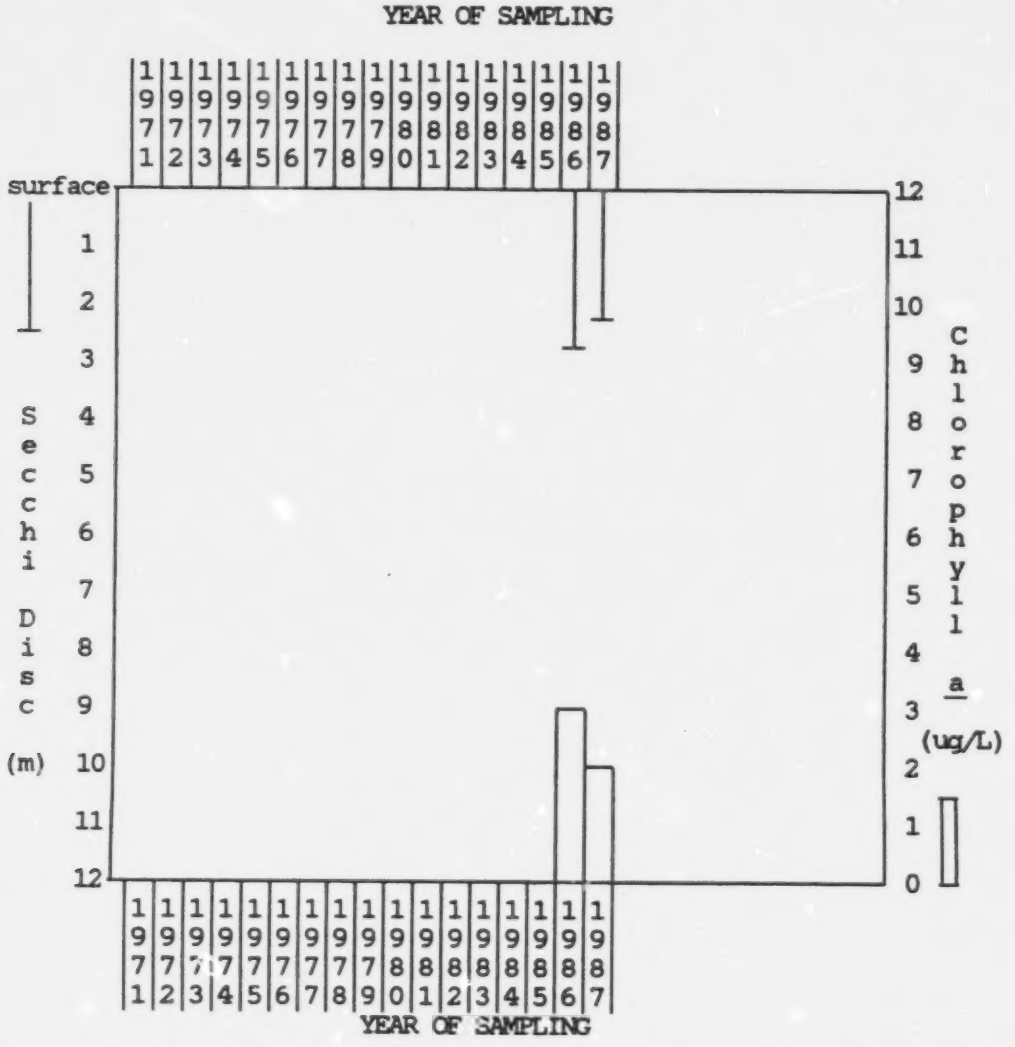


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Little Lake (West Basin). Averages based on fewer than 4 points were considered unreliable and were not graphed.




With only two years of data we are unable to assess long-term trends in the water quality of Little Lake. There appears to be some differences in water quality between the West and East Basins of the lake, however, more data will be required to accurately evaluate these differences.

LITTLE LAKE

CRAMAHE TOWNSHIP

NORTHUMBERLAND COUNTY

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Little Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 7 | 1.3 | 0.8 |
| Jul 12 | 1.0 | 1.6 |
| Jul 19 | 1.05 | 1.5 |
| Jul 26 | 1.0 | 1.2 |
| Aug 3 | 1.4 | 2.1 |
| Aug 30 | 2.0 | 3.6 |
| | 1.3 | 1.8 |

A good sampling program was conducted on Little Lake in 1987, with six samples collected between June 7 and August 30. The results indicate a low degree of water clarity with secchi disc readings averaging 1.3 m. However, based on the recorded chlorophyll a values, algal densities are also low. This suggests that other suspended material in the water may be reducing water clarity. We suggest that in future you make note of this when you submit your samples. We hope you continue to sample frequently next year.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Little Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.

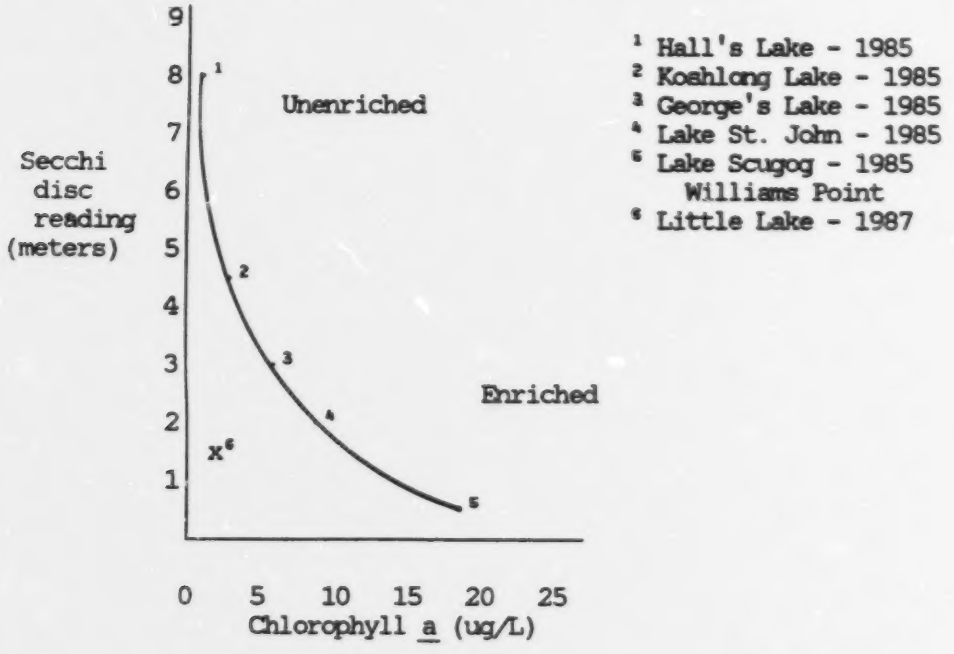
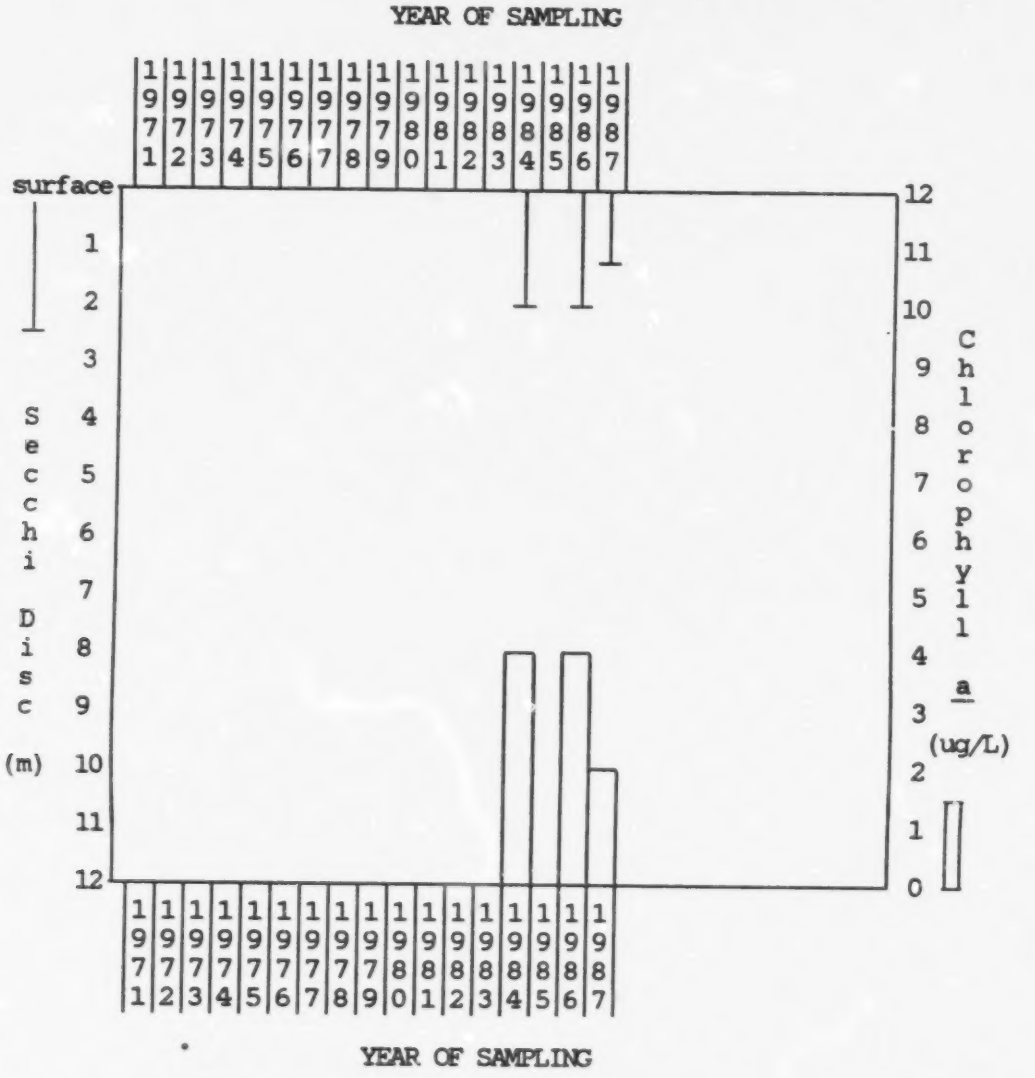


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Little Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




For the three years of record, Little Lake has exhibited a low degree of water clarity and variable densities of suspended algae. We hope that sampling continues on Little Lake so that a long-term record of water quality is obtained.

**LITTLE HAWK LAKE**

**STANHOPE TOWNSHIP**

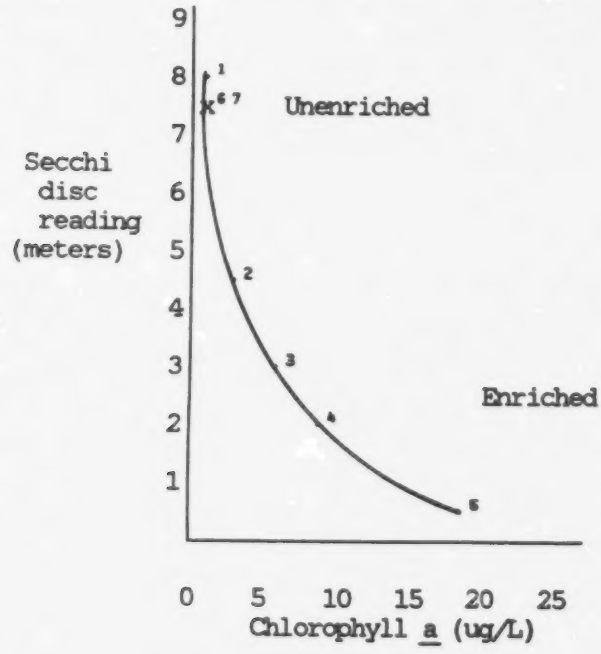
**HALIBURTON COUNTY**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Little Hawk Lake in 1987.

| Station | North End | | South End | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 7 | 7.0 | 1.2 | 7.0 | 1.2 |
| Jun 21 | 8.5 | 1.1 | 9.5 | 1.1 |
| Jun 27 | 6.5 | 1.6 | 7.5 | 1.6 |
| Jul 12 | 7.5 | 0.9 | 7.5 | 0.9 |
| Jul 19 | 7.5 | 0.9 | 7.5 | 0.9 |
| Aug 3 | 8.5 | 1.3 | 9.5 | 1.1 |
| Aug 17 | 7.0 | 1.3 | 7.0 | 1.4 |
| Sep 7 | 8.5 | 1.1 | 8.0 | 1.2 |
| | 7.6 | 1.2 | 7.9 | 1.2 |

An excellent sampling program was conducted on Little Hawk Lake in 1987, with eight samples collected between June 7 and September 7. The results indicate a high degree of water clarity and low algal densities at both sampling locations. Little Hawk Lake would be considered unenriched. We are pleased to see the return of Little Hawk Lake to the Self-Help program. We hope you continue to sample next year.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Little Hawk Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Little Hawk Lake - 1987
[6] North End
[7] South End

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Little Hawk (South). Averages based on fewer than 4 points were considered unreliable and were not graphed.

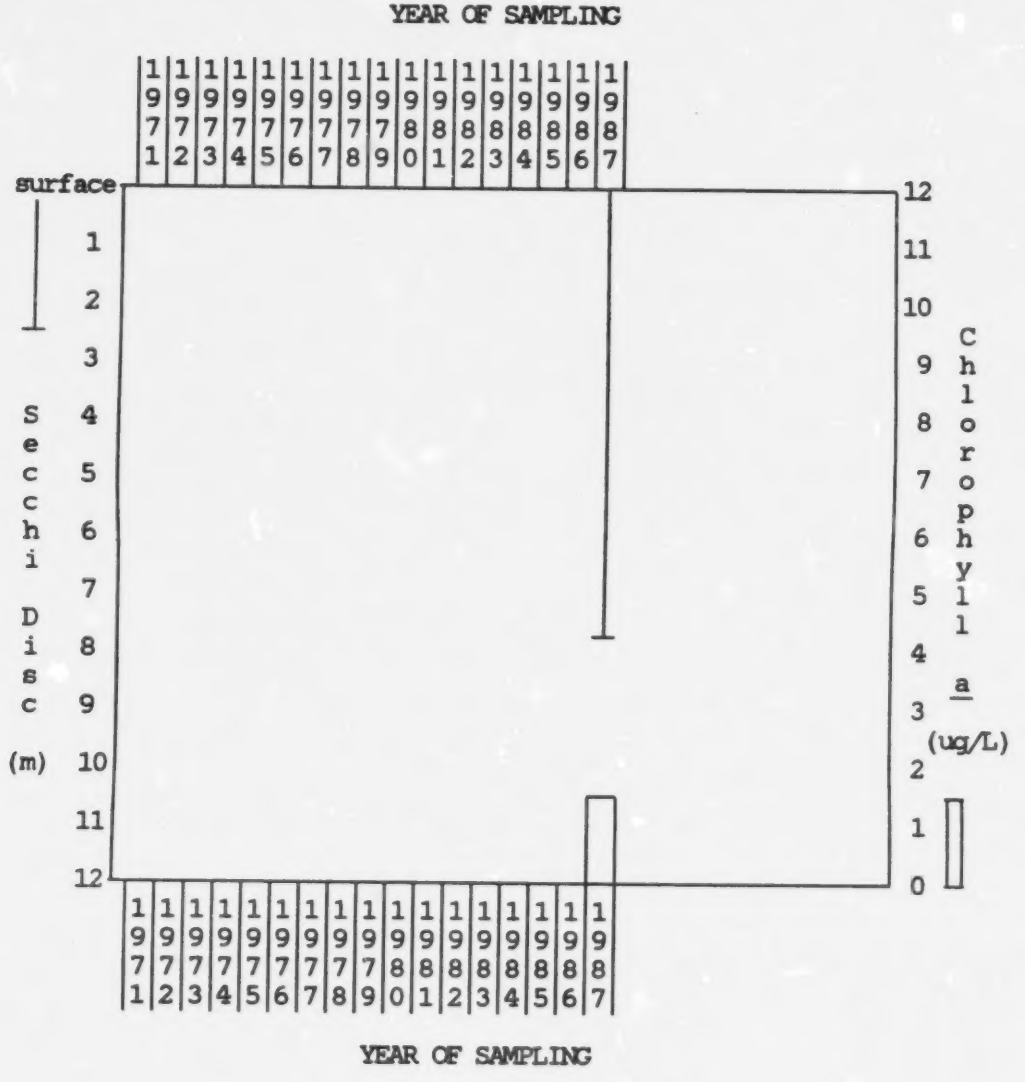
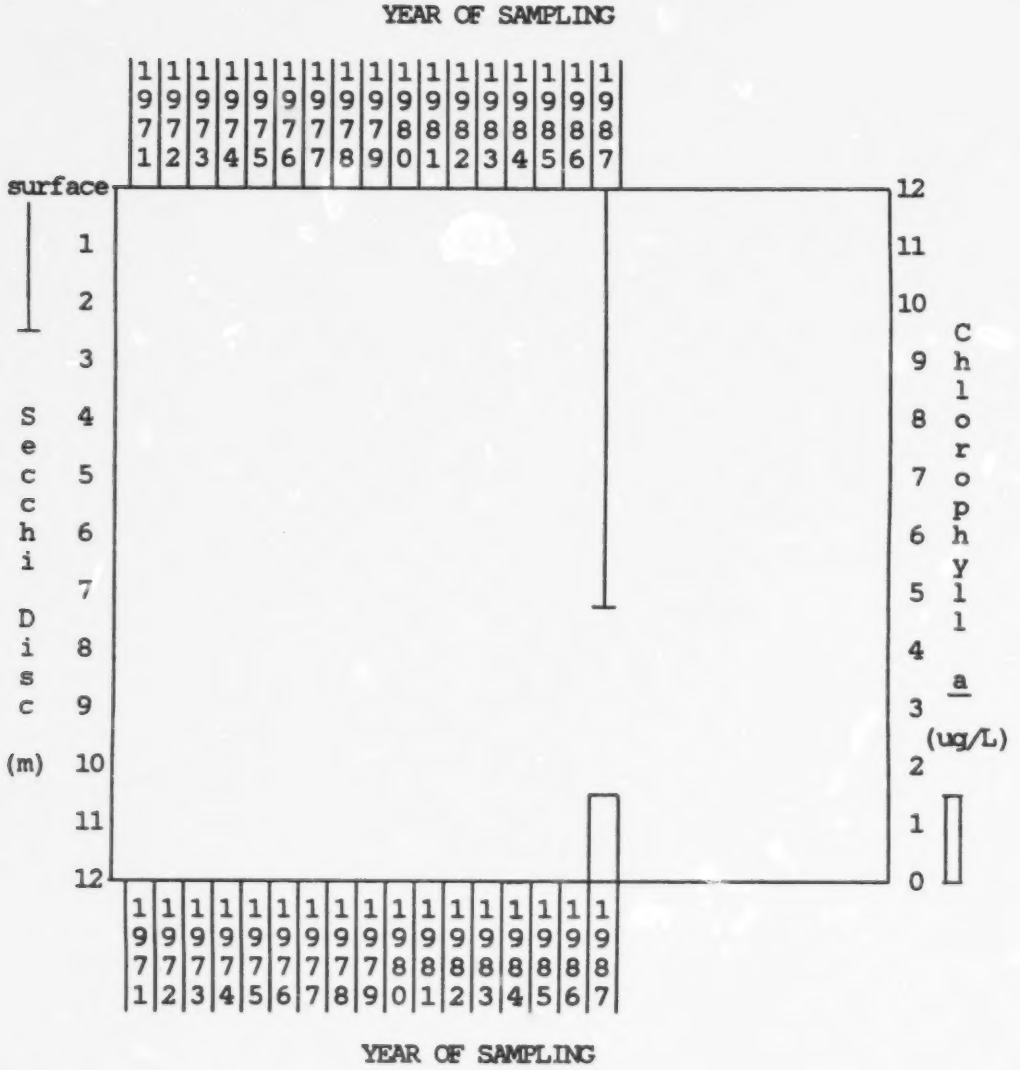


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Little Hawk (North). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Because only one year of data is available, we are unable to comment on trends in the water quality of Little Hawk Lake. We hope that sampling continues so that a long-term record of water quality is obtained.

LITTLE KENNISIS LAKE

HAVELOCK TOWNSHIP

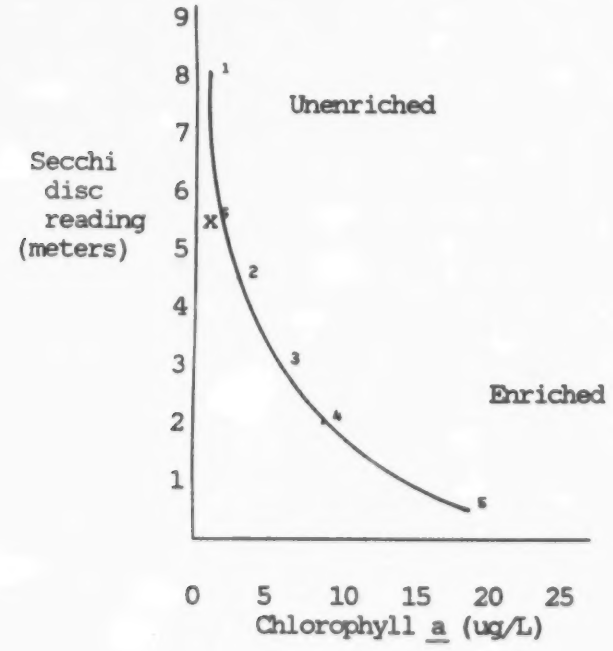
COUNTY OF HALIBURTON

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Little Kennisis Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jul 5 | 6.0 | 0.9 |
| Jul 19 | 6.5 | 1.4 |
| Aug 3 | 4.5 | 1.8 |
| Aug 30 | 4.5 | 1.8 |
| | 5.4 | 1.5 |

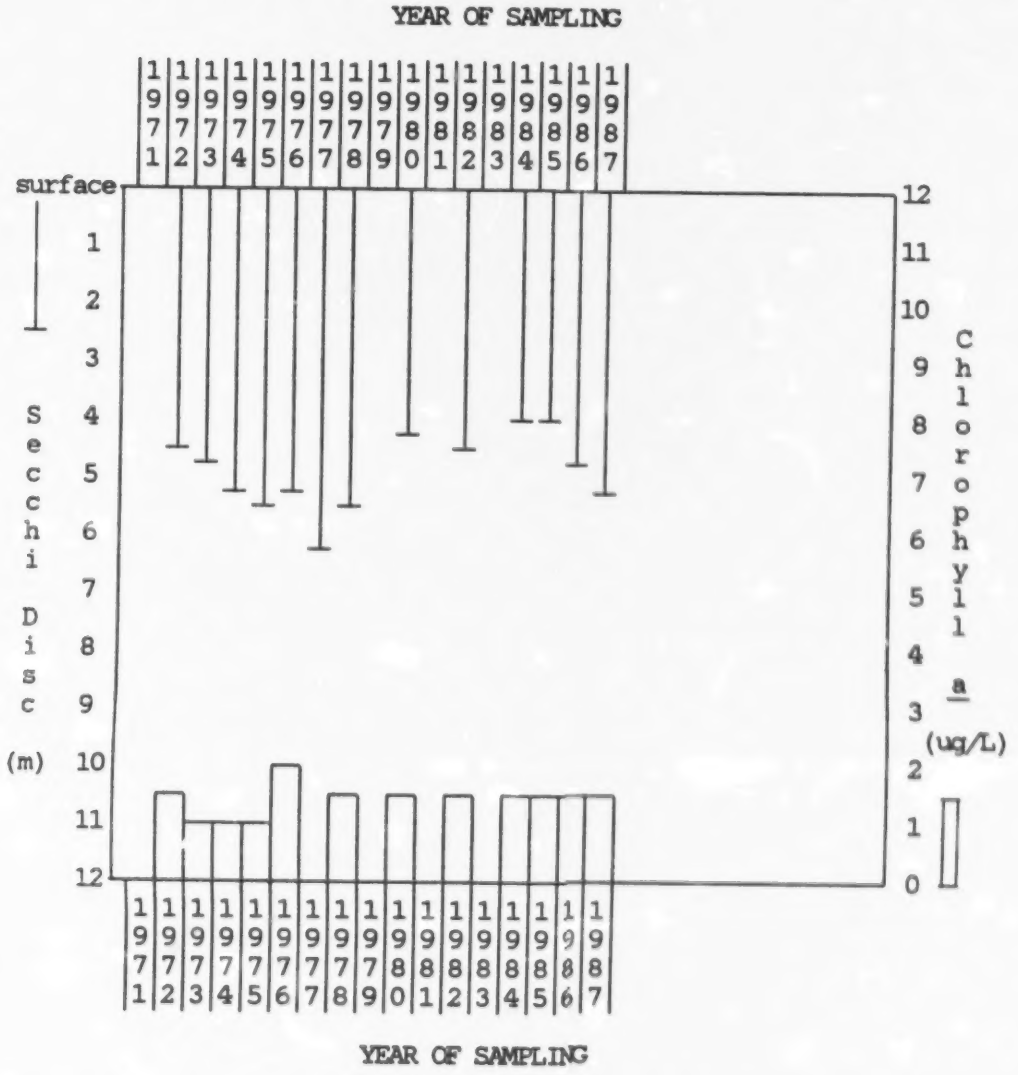
Samples were collected from Little Kennisis on four occasions in 1987. Water clarity was high, with Secchi disc readings averaging 5.4 m. Densities of suspended algae were low as evidenced by the low chlorophyll a concentrations recorded.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Little Kennisis Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




1 Hall's Lake - 1985
2 Koshlong Lake - 1985
3 George's Lake - 1985
4 Lake St. John - 1985
5 Lake Scugog - 1985 Williams Point
6 Little Kennisis - 1987 Lake

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Little Kennisis Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Thirteen years of data are now available for Little Kennisis Lake, providing an excellent record of water quality. Water quality has remained consistently excellent since sampling began in 1972. Densities of suspended algae have been low throughout the period of record and secchi disc readings, although variable, have been generally high.

**LITTLE STRAGGLE LAKE**

**HARCOURT TOWNSHIP**

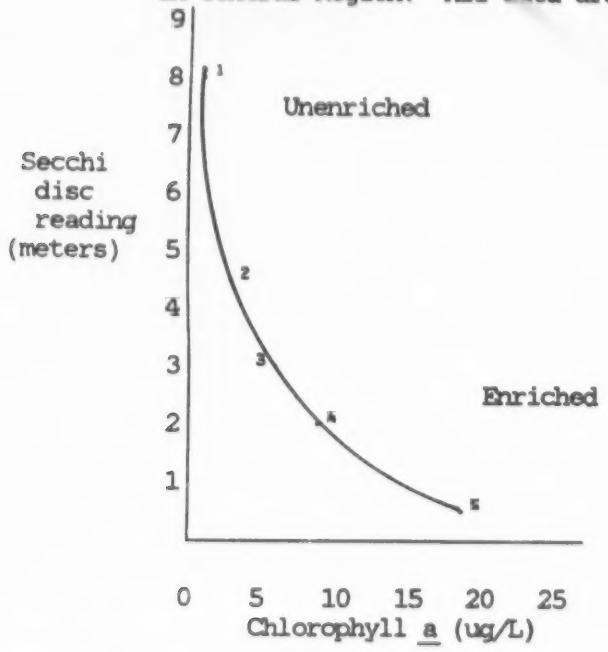
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Little Straggle Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jul 5 | 3.2 | - |
| Aug 3 | 3.9 | 2.2 |
| Aug 16 | 3.1 | 1.1 |
| Aug 30 | 3.2 | 1.4 |
| | 3.3 | - |

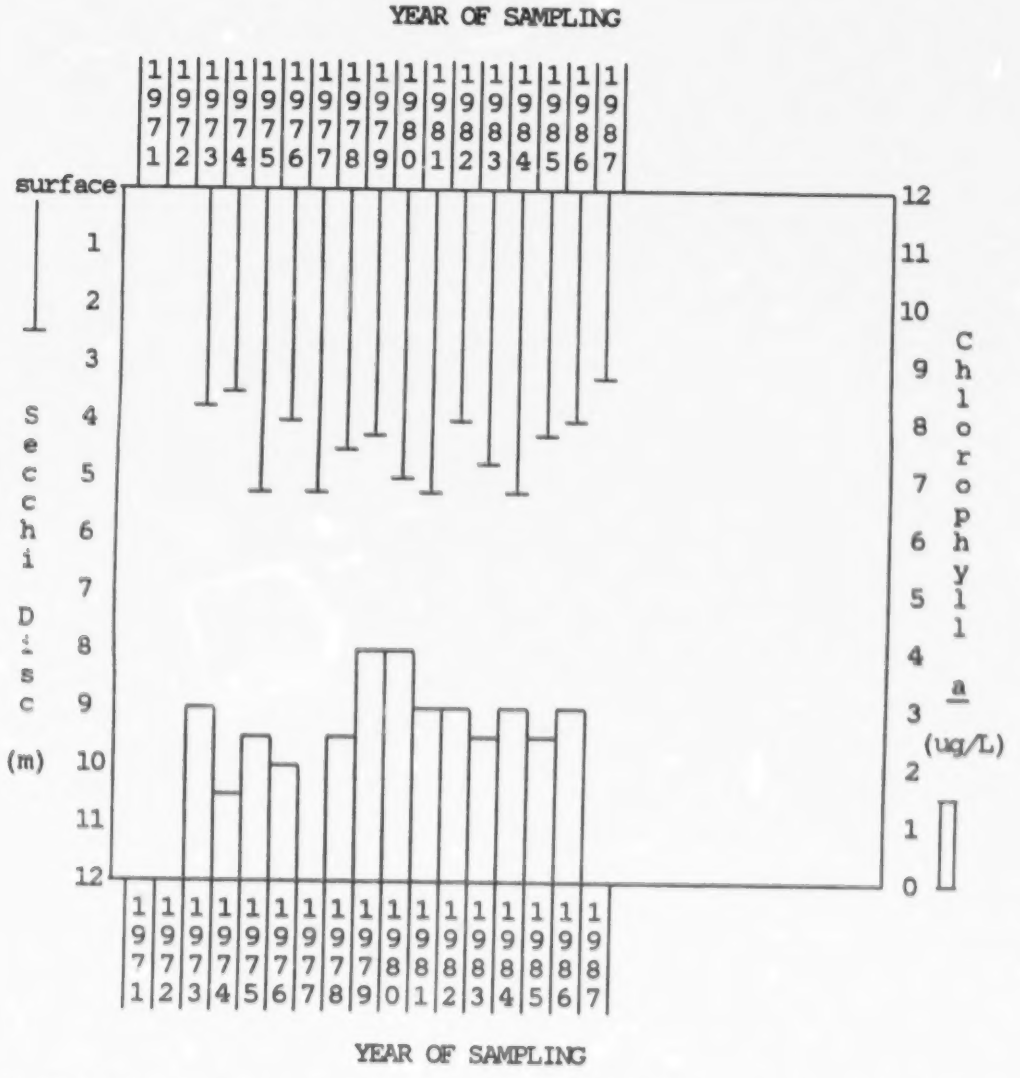
Samples were collected from Little Straggle Lake on four occasions in 1987. Water clarity was moderate, with average Secchi disc readings of 3.3 m. chlorophyll a concentrations were generally low, indicating that densities of suspended algae were low.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Little Straggle Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Little Straggle - 1987
Lake
- insufficient data

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Little Straggle Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




An excellent record of water quality is available for Little Straggle Lake with fifteen continuous years of data. Throughout this period of record, water quality has changed very little. Densities of suspended algae have been moderate and water clarity has been moderately high.

LONG LAKE

DUDLEY TOWNSHIP

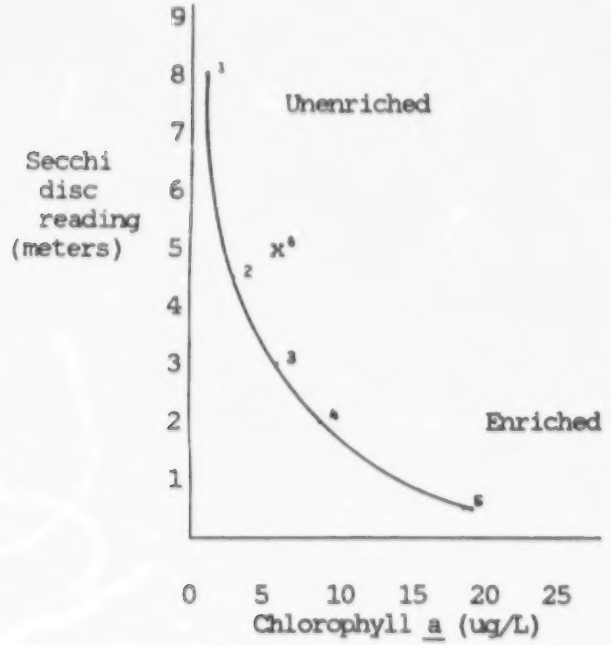
COUNTY OF HALIBURTON

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Long Lake in 1987.

| Station | West | |
|---|---|---|
| Date | S.D. | Chl.*a* |
| Jun 21 | 5.5 | 4.7 |
| Aug 3 | 5.0 | 4.4 |
| Aug 23 | 5.0 | 3.6 |
| Sep 7 | 5.0 | 11.2 |
| | 5.1 | 6.0 |

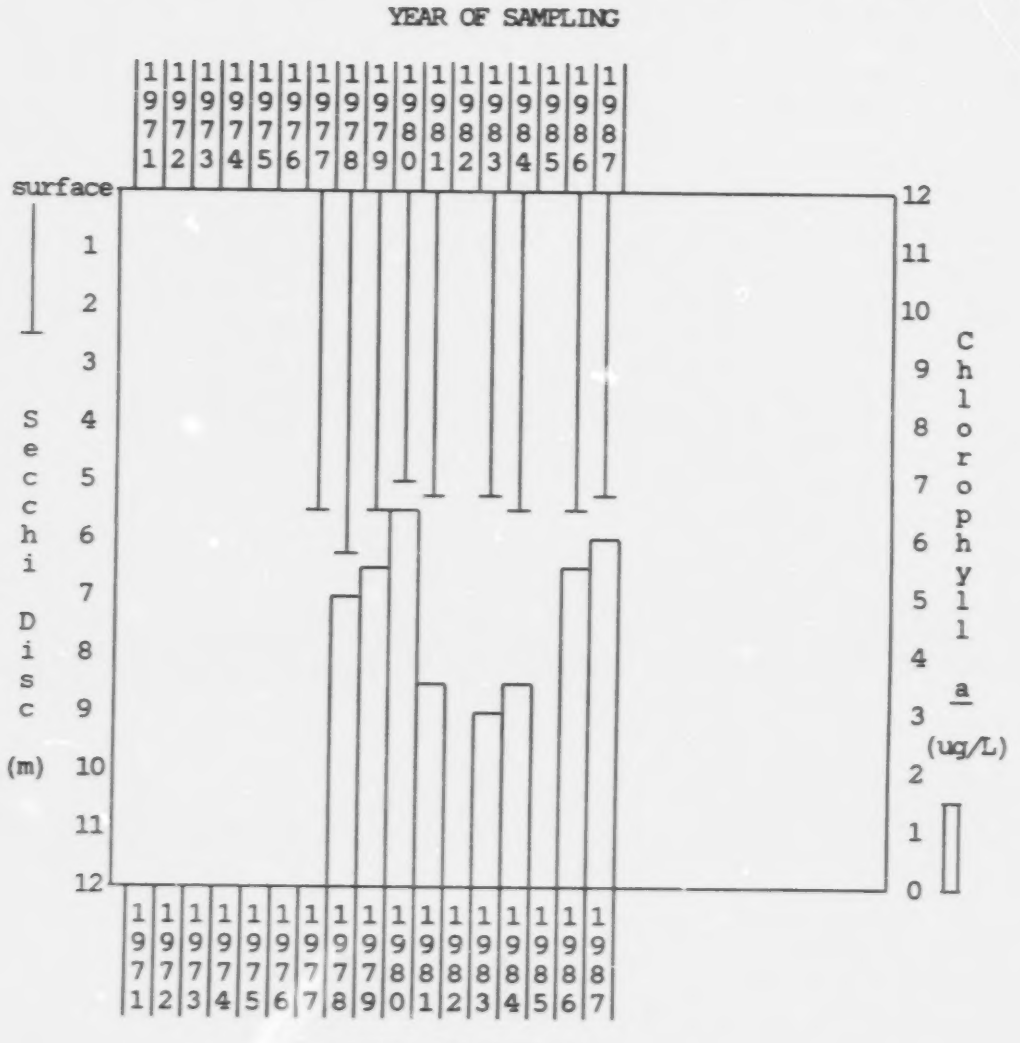
Only four samples were collected from Long Lake in 1987. Water clarity was consistently high despite high densities of suspended algae. Long Lake is considered moderately enriched and is subject to periodic algal blooms. We recommend that a minimum of six samples be collected throughout the summer of 1988 so that a more definitive picture of lake quality may be obtained.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Long Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Long Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Long Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




We now have nine years of water quality data for Long Lake. Throughout this period of record, water clarity has been consistently high despite high densities of suspended algae. This may indicate some clumping of algae below the Secchi disc depths. Average chlorophyll a concentrations showed some decline in 1981, 1983 and 1984, but in the last two years have returned to their former level.

LONG LAKE

HARCOURT PARK

COUNTY OF HALIBURTON

Table 1: Secchi disc (m) and chlorophyll *a* (ug/L) data collected from Long Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.*a* |
| Jun 14 | 3.75 | - |
| Jul 12 | 3.75 | 3.2 |
| Jul 26 | 3.5 | 2.0 |
| Aug 16 | 4.5 | 2.2 |
| Aug 23 | 4.5 | 2.7 |
| | 3.8 | 2.5 |

Five samples were collected from Long Lake between June 14 and August 23. Secchi disc readings ranged from 3.5 to 4.5 m, indicating moderate water clarity. Chlorophyll *a* concentrations ranged from 2.0 to 3.2 ug/L, indicative of moderately enriched conditions. We hope that sampling continues in 1988 with a slightly increased frequency.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Long Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.

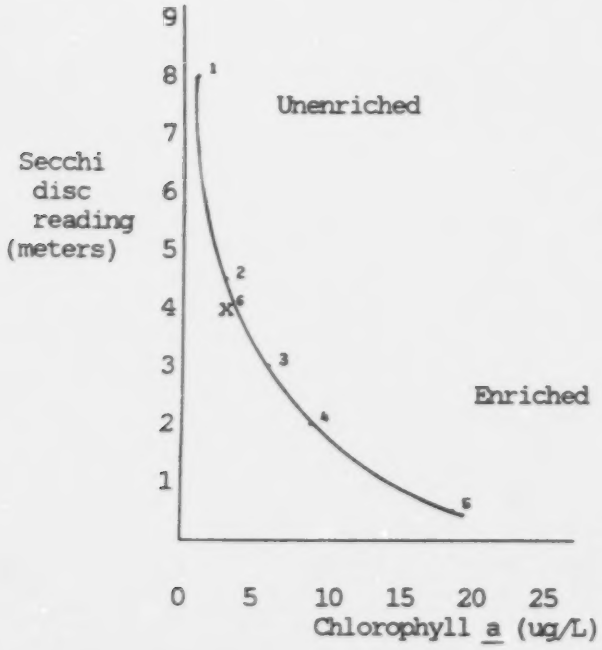
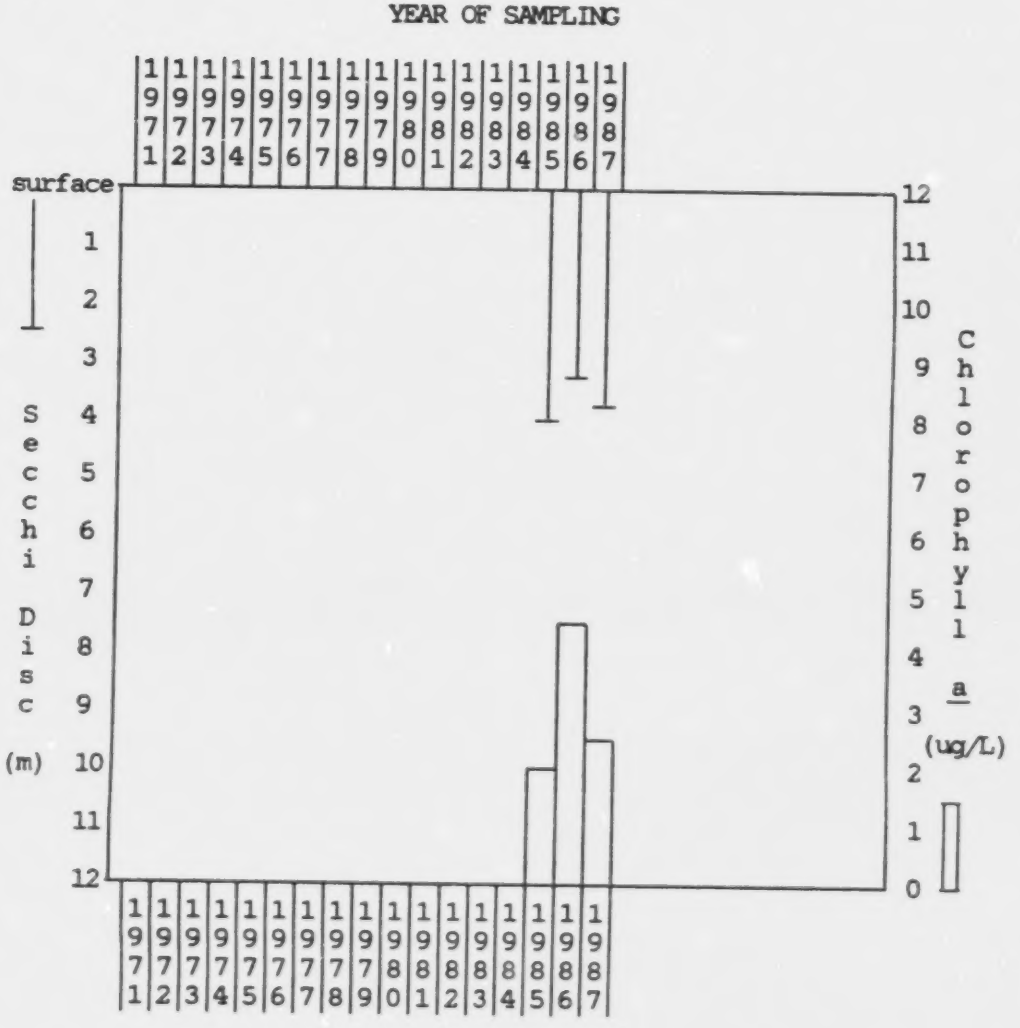


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Long Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Based on the three years of record for Long Lake, it appears that Secchi disc readings have been moderate. Chlorophyll a concentrations have fluctuated, being somewhat higher in 1986 than in either 1985 or 1987.

LOON LAKE

MONMOUTH TOWNSHIP

COUNTY OF HALIBURTON

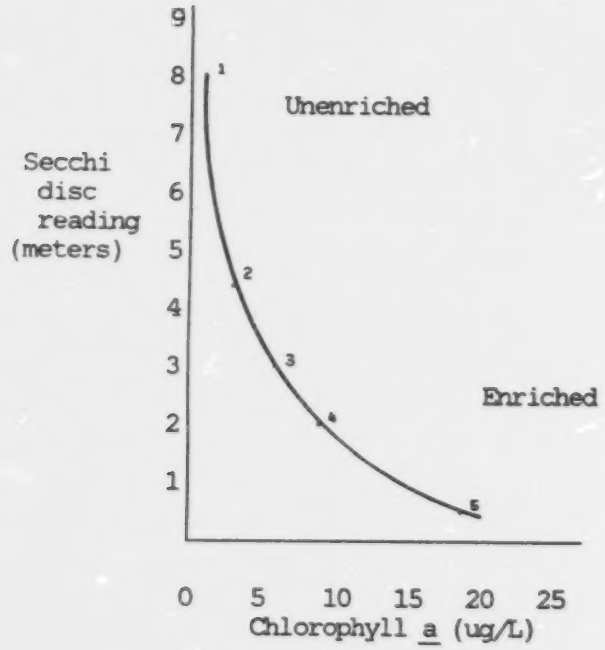
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Loon Lake in 1987. Note that samples were collected from different locations.

| Date | S.D. | Chl.a |
|---|---|---|
| May 17 | 5.5 | 0.9 |
| Jun 28 | - | 4.5* |
| Jul 5 | 3.2 | 4.3* |
| Aug 3 | 4.0 | 1.7 |
| Aug 3 | 4.2 | 1.9 |
| Sep 28 | 4.7 | 0.3 |
| Sep 28 | 5.2 | 0.3 |

* Average of two samples from the same location.

Samples were collected from Loon Lake on five occasions in 1987. Unfortunately, because a number of different locations were sampled, a definitive evaluation of water quality cannot be made. In future, one station in the middle of the lake should be sampled at least six times throughout the season.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Loon Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Loon Lake - inadequate data

**LOONCALL LAKE**

**BURLEIGH TOWNSHIP**

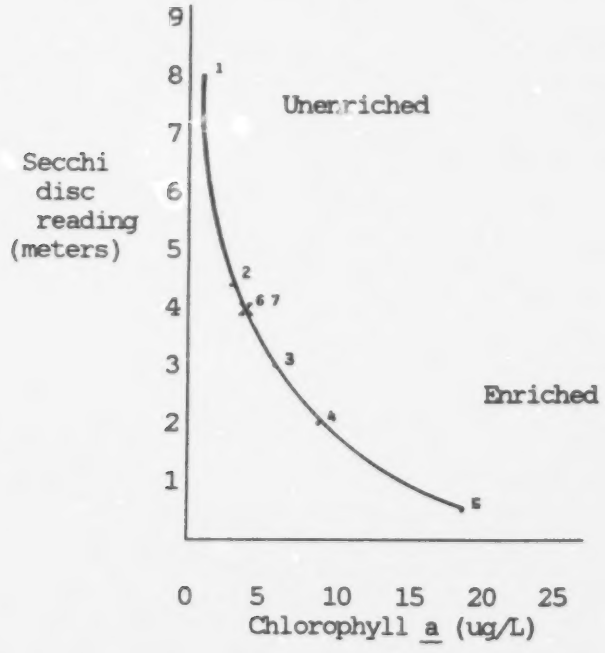
**COUNTY OF PETERBOROUGH**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Looncall Lake in 1987.

| Station | East | | West | |
|---|---|---|---|---|
| Date | S.D. | Chl.*a* | S.D. | Chl.*a* |
| May 30 | 3.2 | 7.2 | 3.5 | 5.9 |
| Jun 14 | 3.5 | 2.5 | 4.5 | 3.7 |
| Jul 26 | 4.0 | - | 4.5 | - |
| Aug 30 | 4.5 | 2.5 | 4.0 | 2.8 |
| Sep 27 | 4.25 | 2.5 | 4.25 | 2.2 |
| | 3.9 | 3.7 | 4.2 | 3.7 |

Samples were collected from Looncall Lake on five occasions in 1987. Water quality was similar at both stations and indicated moderately enriched lake conditions. Chlorophyll *a* concentrations were highest in May, suggesting that a late spring algal bloom occurred.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Looncall Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Looncall Lake - 1987
[6] East
[7] West

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Looncall Lake (East). Averages based on fewer than 4 points were considered unreliable and were not graphed.

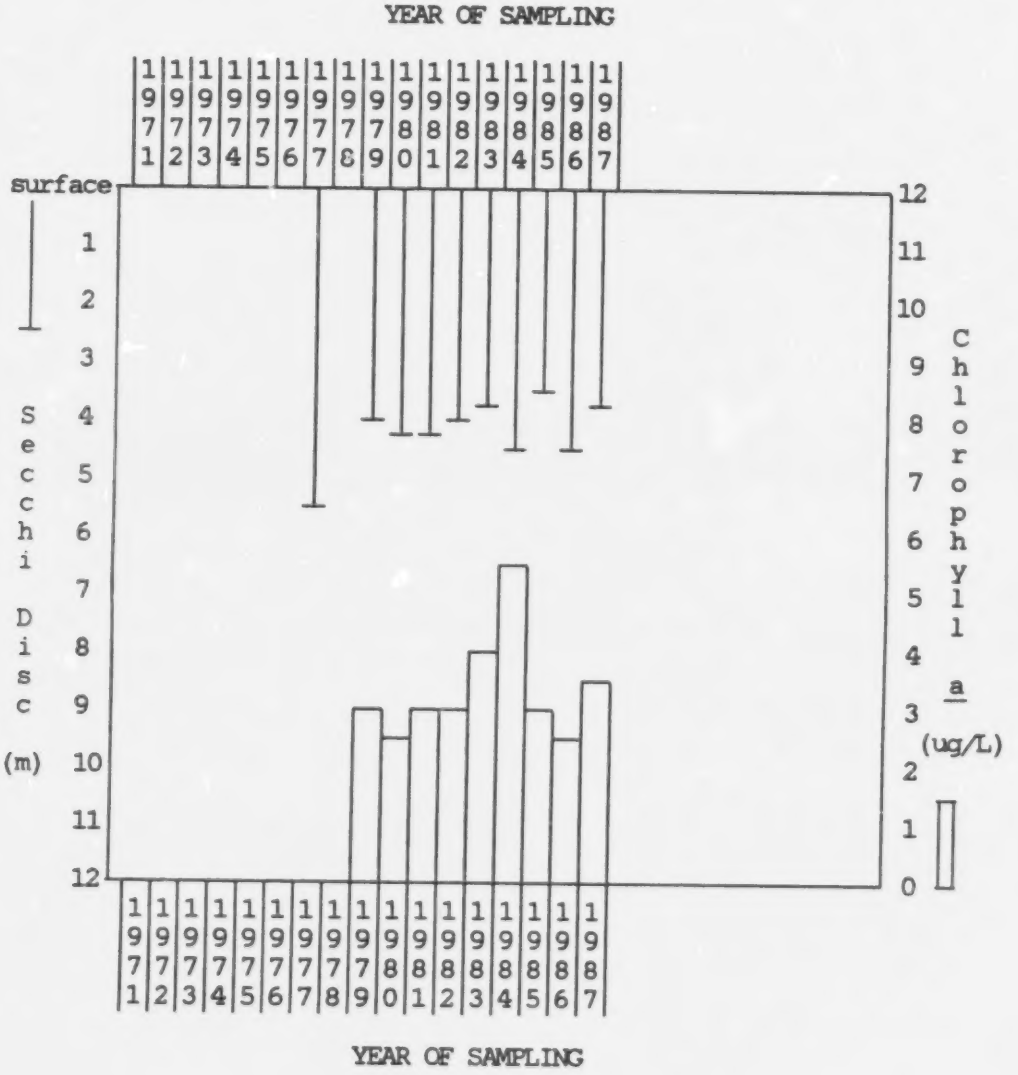
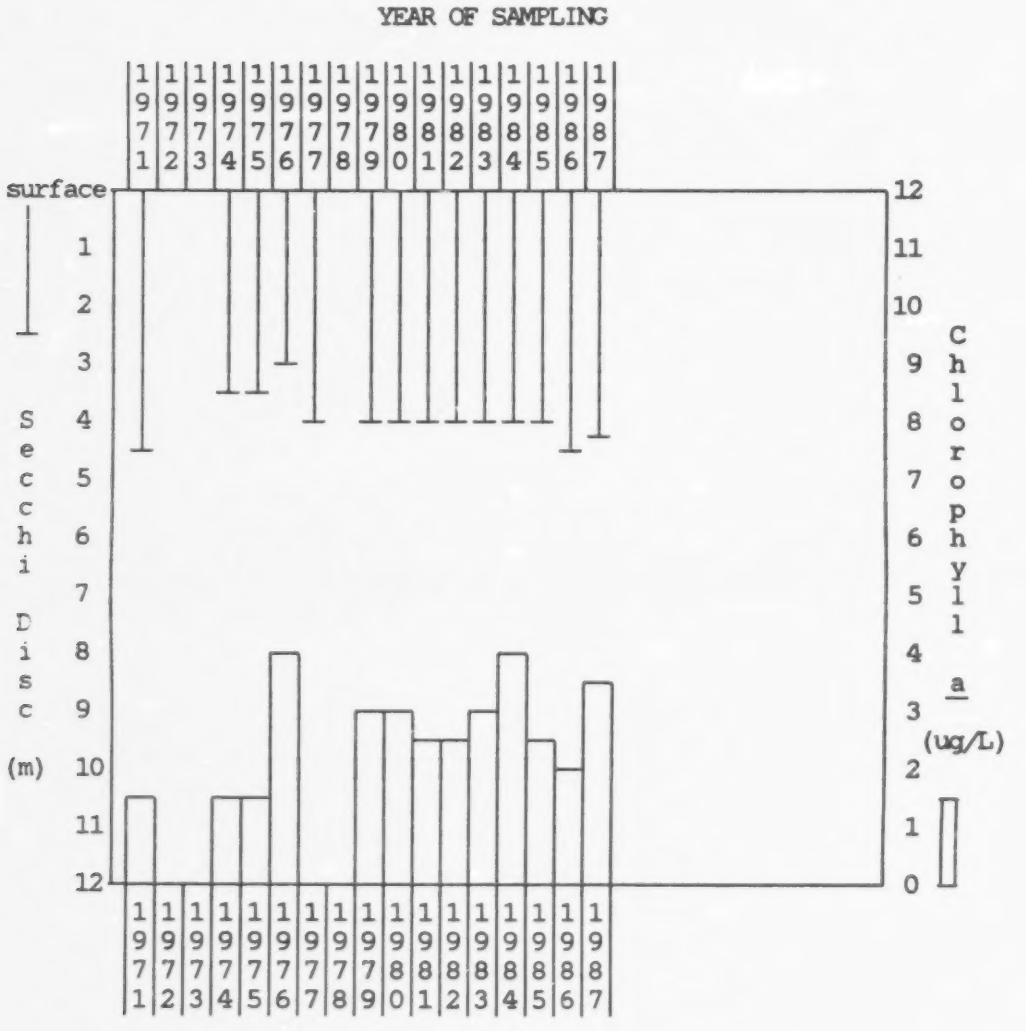


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Looncall Lake (West). Averages based on fewer than 4 points were considered unreliable and were not graphed.




An excellent historical record of the water quality of Looncall Lake is now available. Samples have been collected for ten years at the East station and fourteen years at the West station. Water quality has been fairly constant throughout this period of record. Secchi disc readings have been moderate and algal densities, although variable, have been generally moderate.

MEDORA LAKE

MEDORA WARD
TOWNSHIP OF MUSKOKA LAKES

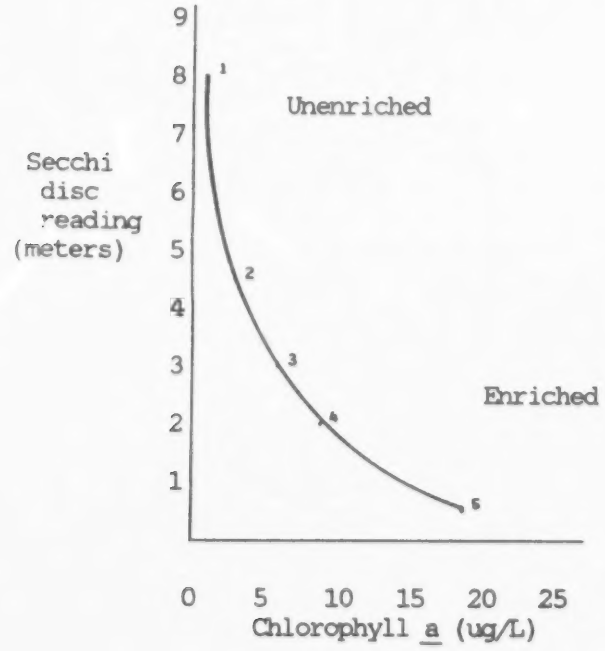
DISTRICT MUNICIPALITY OF
MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Medora Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.a |
| Aug 3 | 4.5 | 13.3 |

Insufficient sampling was undertaken in 1987 to obtain an accurate indication of water quality conditions in Medora Lake. A minimum of six samples collected throughout the summer is recommended. We hope that you are able to sample more frequently in 1988.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Medora Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Medora Lake - 1987
- insufficient data

**MENOMINEE LAKE**

**LAKE OF BAYS TOWNSHIP**

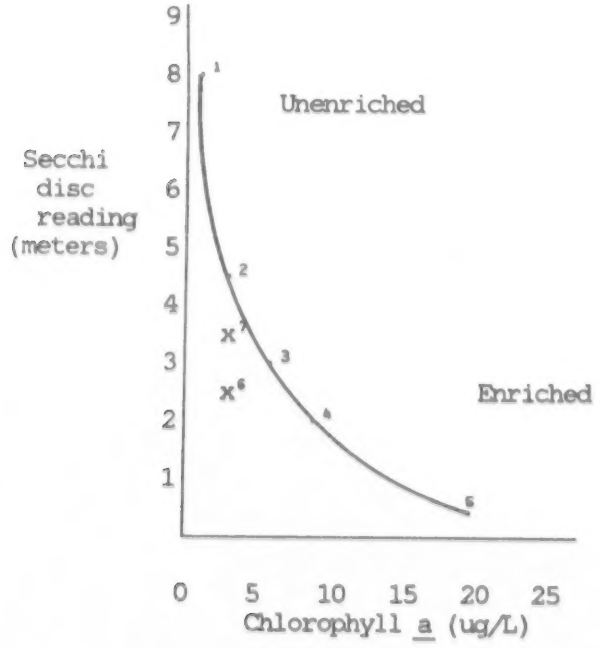
**MUSKOKA DISTRICT**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Menominee Lake in 1987.

| Station | North End | | South End | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 7 | 2.0 | 2.0 | 2.0 | 2.9 |
| Jun 21 | 2.2 | 2.8 | 2.2 | 5.9 |
| Aug 20 | 2.2 | 3.3 | 2.0 | 2.6 |
| Sep 27 | 2.2 | 2.0 | 2.2 | 2.7 |
| | 2.2 | 2.5 | 2.1 | 3.5 |

Samples were collected from Menominee Lake on four occasions in 1987, the first year of Self-Help sampling on this lake. Water clarity was low, with Secchi disc readings averaging 2.2 m and 2.1 m in the North and South ends of the lake respectively. Chlorophyll a concentrations were moderately high, with some indication of an algal bloom in the South end in late June. Based on these results, Menominee Lake would be considered moderately enriched. We hope that sampling will continue in 1988 with a slightly increased frequency.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Menominee Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




1 Hall's Lake - 1985
2 Koshlong Lake - 1985
3 George's Lake - 1985
4 Lake St. John - 1985
5 Lake Scugog - 1985
Williams Point
Menominee Lake - 1987
6 North
7 South

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Menominee Lake (South end). Averages based on fewer than 4 points were considered unreliable and were not graphed.

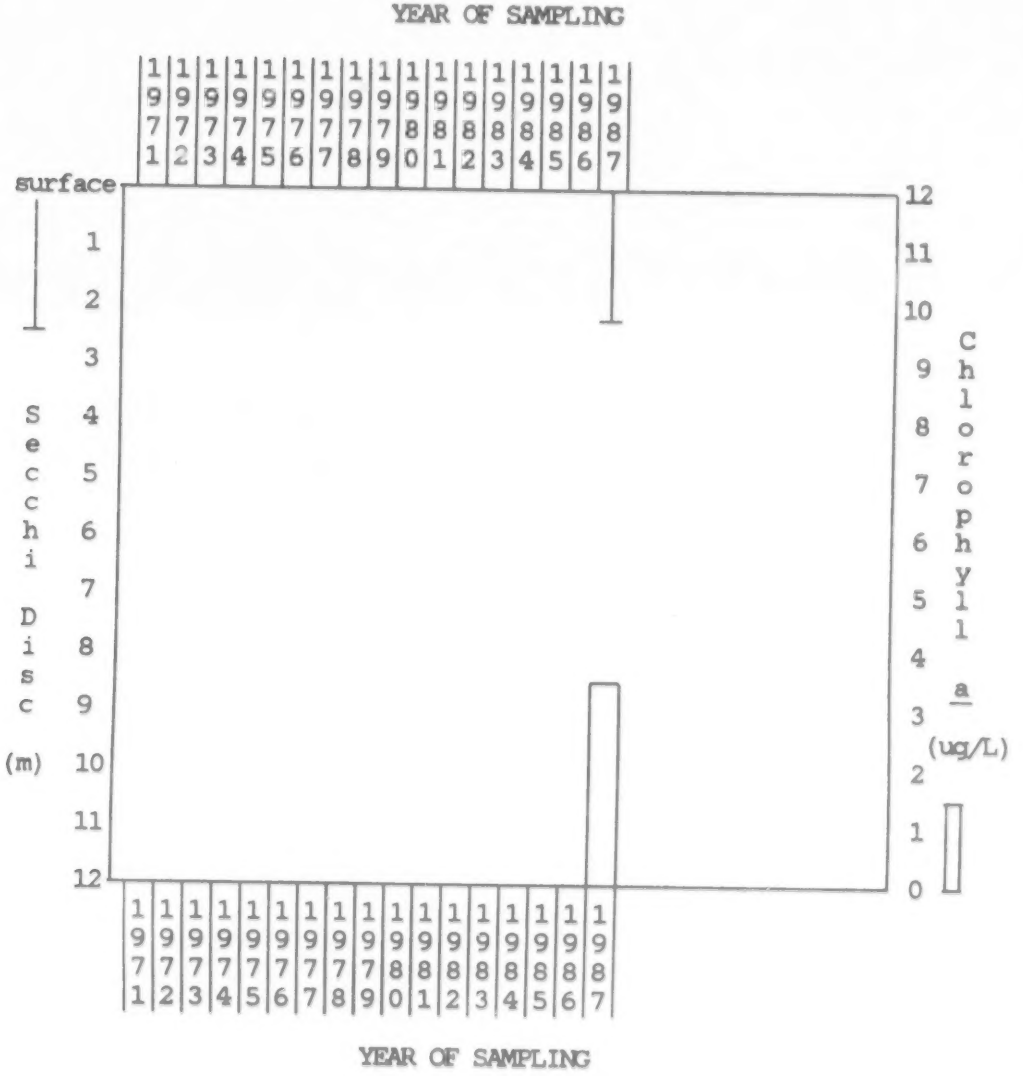
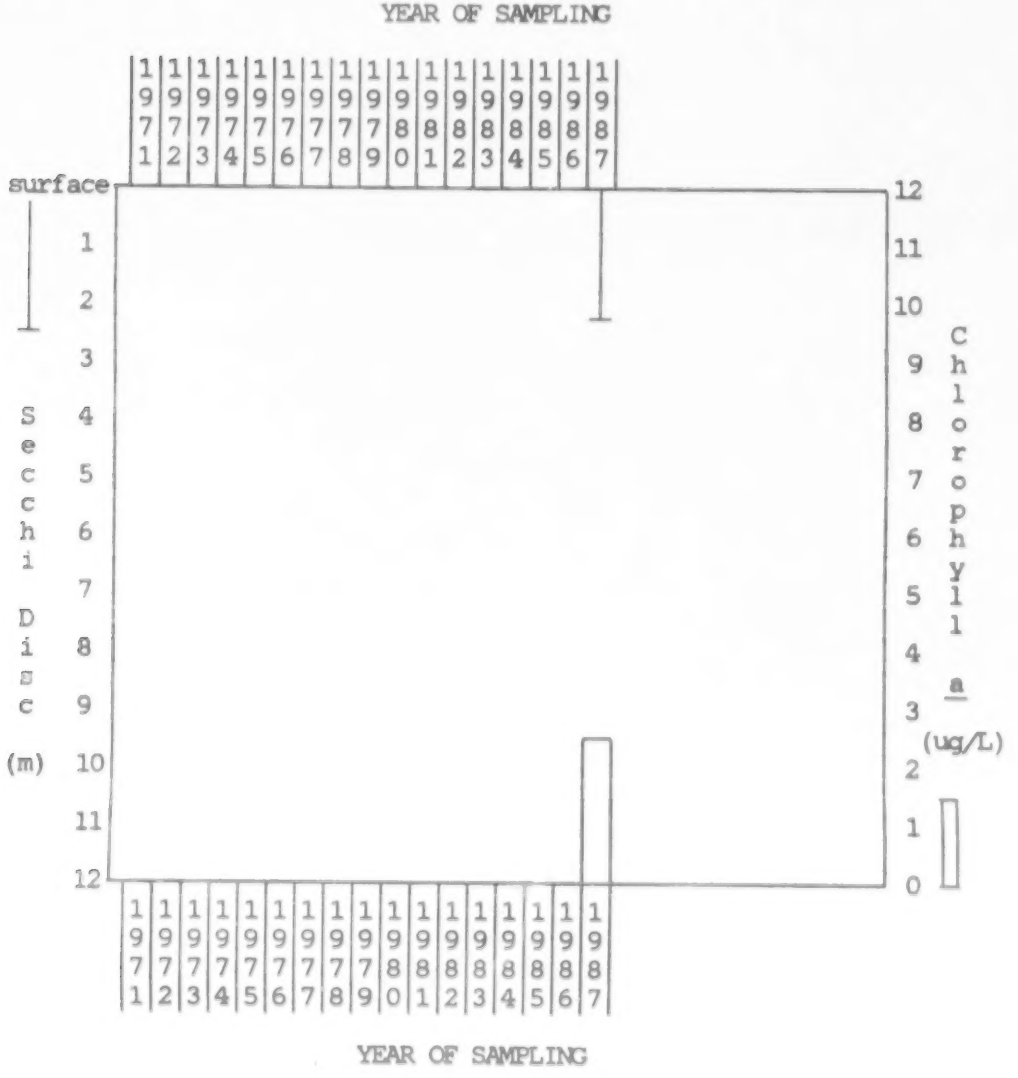


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Menominee Lake (North end). Averages based on fewer than 4 points were considered unreliable and were not graphed.




This being the first year of sample collection we are unable to assess temporal trends in the water quality of Menominee Lake. We hope that sampling continues to establish a long-term record of water quality.

**MINDEN LAKE**

**MINDEN TOWNSHIP**

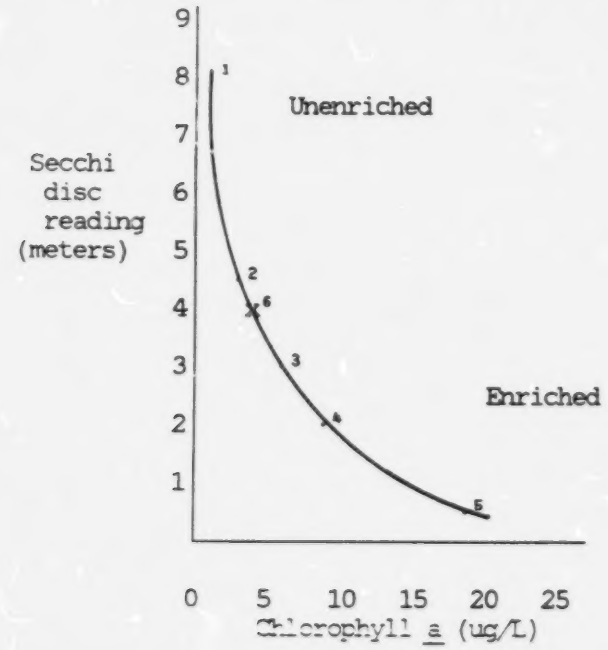
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Minden Lake in 1987.

| Station | Bingham Bay | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 14 | 4.25 | 3.6 |
| Jun 29 | 3.25 | 2.4 |
| Jul 12 | 5.5 | 2.0 |
| Jul 26 | 4.25 | 2.4 |
| Aug 3 | 4.25 | 13.2 |
| Aug 16 | 3.5 | 2.4 |
| Aug 23 | 4.0 | 1.6 |
| Aug 30 | 3.75 | 2.2 |
| Sep 7 | 4.0 | 2.6 |
| | 4.0 | 3.6 |

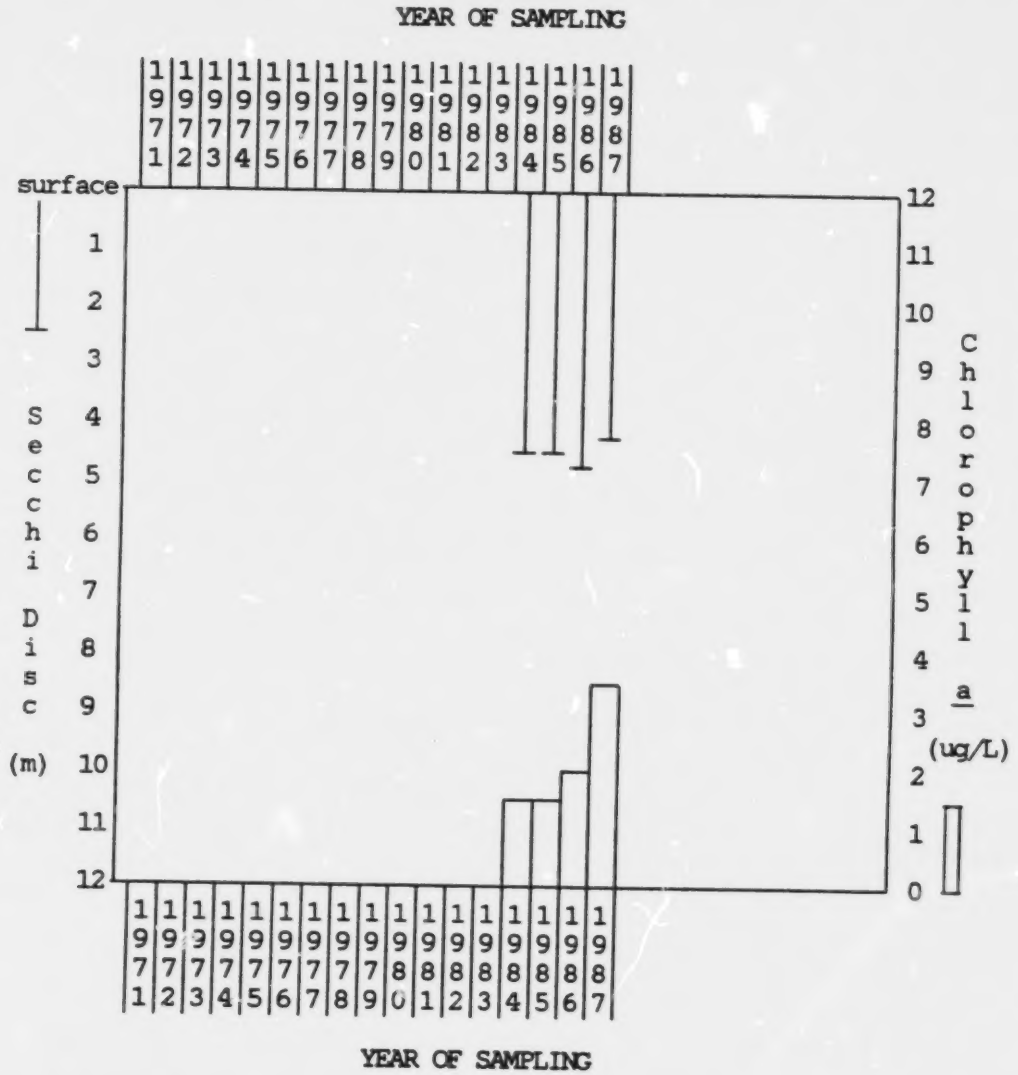
Once again an excellent sampling program was carried out on Minden Lake, with nine samples collected. Secchi disc readings ranged from 3.25 to 5.5 m indicating a moderate degree of water clarity. Based on the chlorophyll a results received, algal densities appear to be moderate to low, with evidence of an algal bloom in early August when the chlorophyll a concentration rose to 13.2 ug/L. We hope that you continue your excellent sampling efforts next year.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Minden Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Minden Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Minden Lake (Bingham Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Four years of data are now available for Minden Lake. For this period of record, average secchi disc readings have been moderately high. Average chlorophyll a concentrations were low from 1984-1986 and somewhat higher in 1987. Note, however, that with the exception of the sample collected August 3, chlorophyll a concentrations were generally low in 1987 as well.

**MISKWABI LAKE**

**DUDLEY TOWNSHIP**

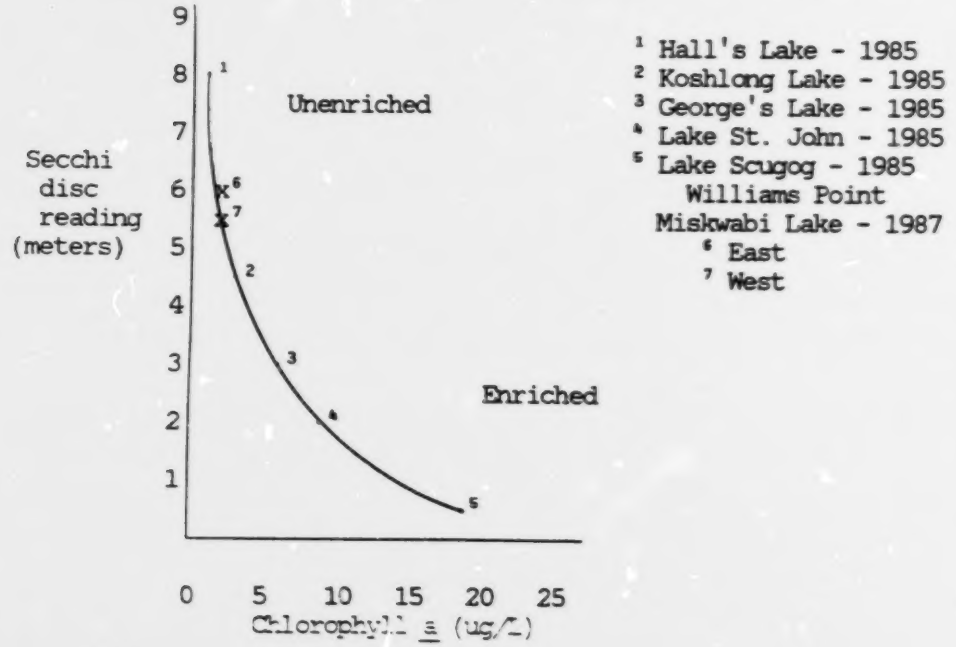
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Miskwabi Lake in 1987.

| Station | East | | West | |
|---|---|---|---|---|
| Date | S.D. | Chl.*a* | S.D. | Chl.*a* |
| May 31 | - | - | 6.0 | 1.6 |
| Jun 21 | 5.75 | 1.1 | - | - |
| Jun 25 | - | - | 5.0 | 0.8 |
| Jul 5 | 5.75 | 1.5 | - | - |
| Jul 12 | 5.75 | 1.9 | 4.8 | 1.4 |
| Jul 19 | 5.75 | 1.2 | - | - |
| Jul 26 | 5.75 | 0.8 | - | - |
| Jul 27 | - | - | 5.5 | 1.9 |
| Aug 3 | 5.75 | 1.7 | 4.8 | 1.6 |
| Aug 10 | - | - | 5.5 | 3.9 |
| Aug 16 | - | - | 5.5 | 1.3 |
| Sep 7 | 7.75 | 1.4 | - | - |
| | 6.0 | 1.4 | 5.3 | 1.8 |

See attached page for text.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Miskwabi Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.



MISKWABI LAKE (page 2)

DUDLEY TOWNSHIP

COUNTY OF HALIBURTON

An excellent sampling program was carried out on Miskwabi Lake in 1987, with seven samples collected from each of the two stations. Water quality was similar at the two stations. Secchi disc readings were high, averaging 6.0 m and 5.3 m at the east and west stations respectively. Chlorophyll a concentrations averaged 1.4 ug/L at the east station and 1.6 ug/L at the west station. The water quality of Miskwabi Lake continues to be excellent with low densities of suspended algae and a high degree of water clarity.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Miskwabi Lake (West). Averages based on fewer than 4 points were considered unreliable and were not graphed.

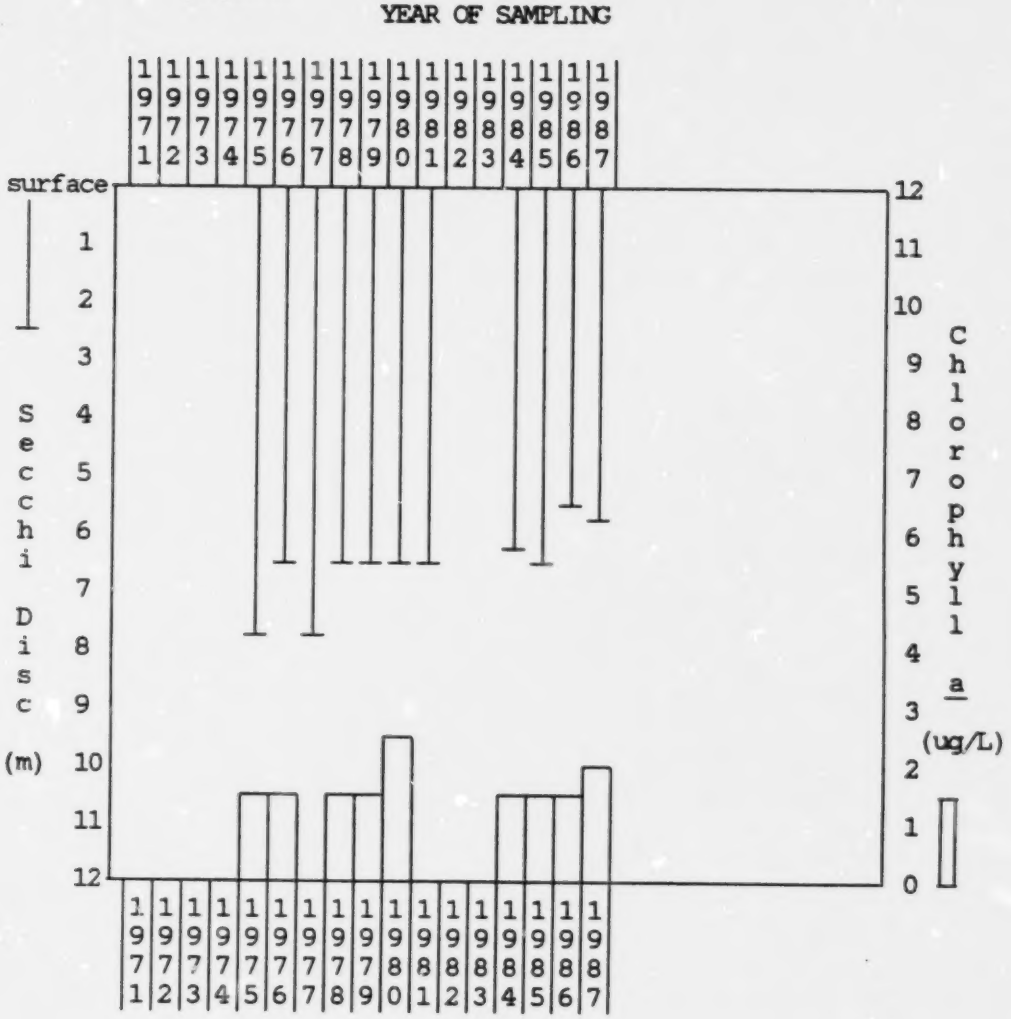
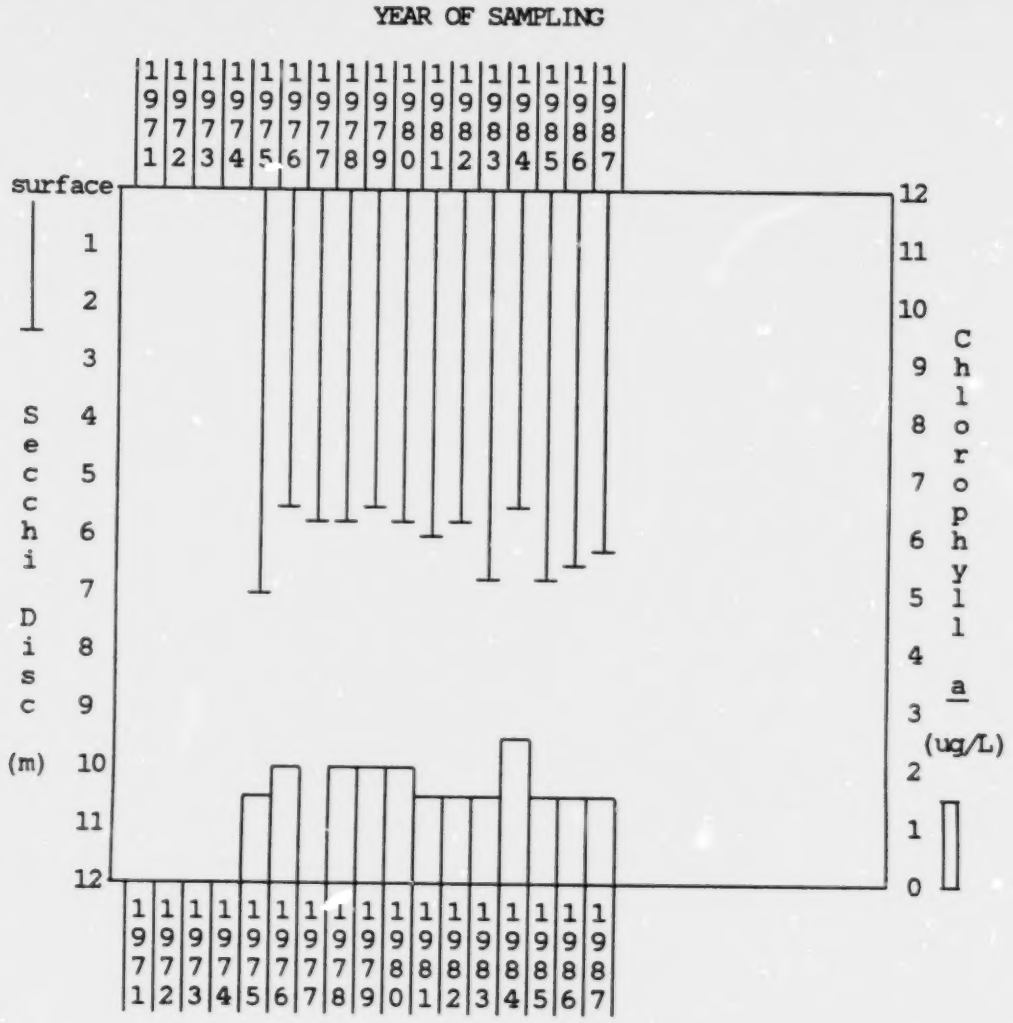


Figure 3 : Historical record of average Secchi disc and chlorophyll *a* results for Miskwabi Lake (East). Averages based on fewer than 4 points were considered unreliable and were not graphed.




We now have an excellent historical record of water quality for Miskwabi Lake, with eleven years of data for the west station and thirteen years of data for the east station. Throughout this period of record, water quality has been consistently excellent, with high water clarity and low densities of suspended algae.

**MOOT LAKE**

**McLEAN WARD**
**TOWNSHIP OF LAKE OF BAYS**

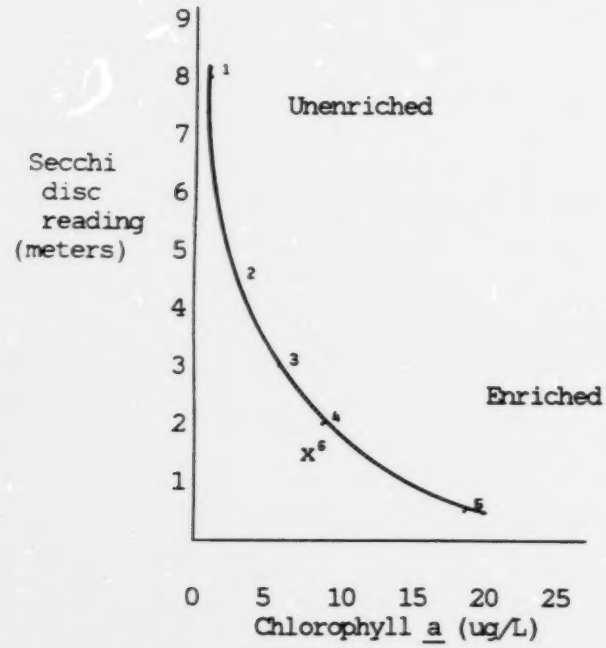
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Moot Lake in 1987.

| Station | South End | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jul 12 | 2.0 | 9.3 |
| Jul 19 | 1.2 | 9.9 |
| Aug 2 | 2.0 | 6.7 |
| Aug 18 | 1.8 | 7.3 |
| Aug 30 | 1.5 | 7.6 |
| | 1.7 | 8.1 |

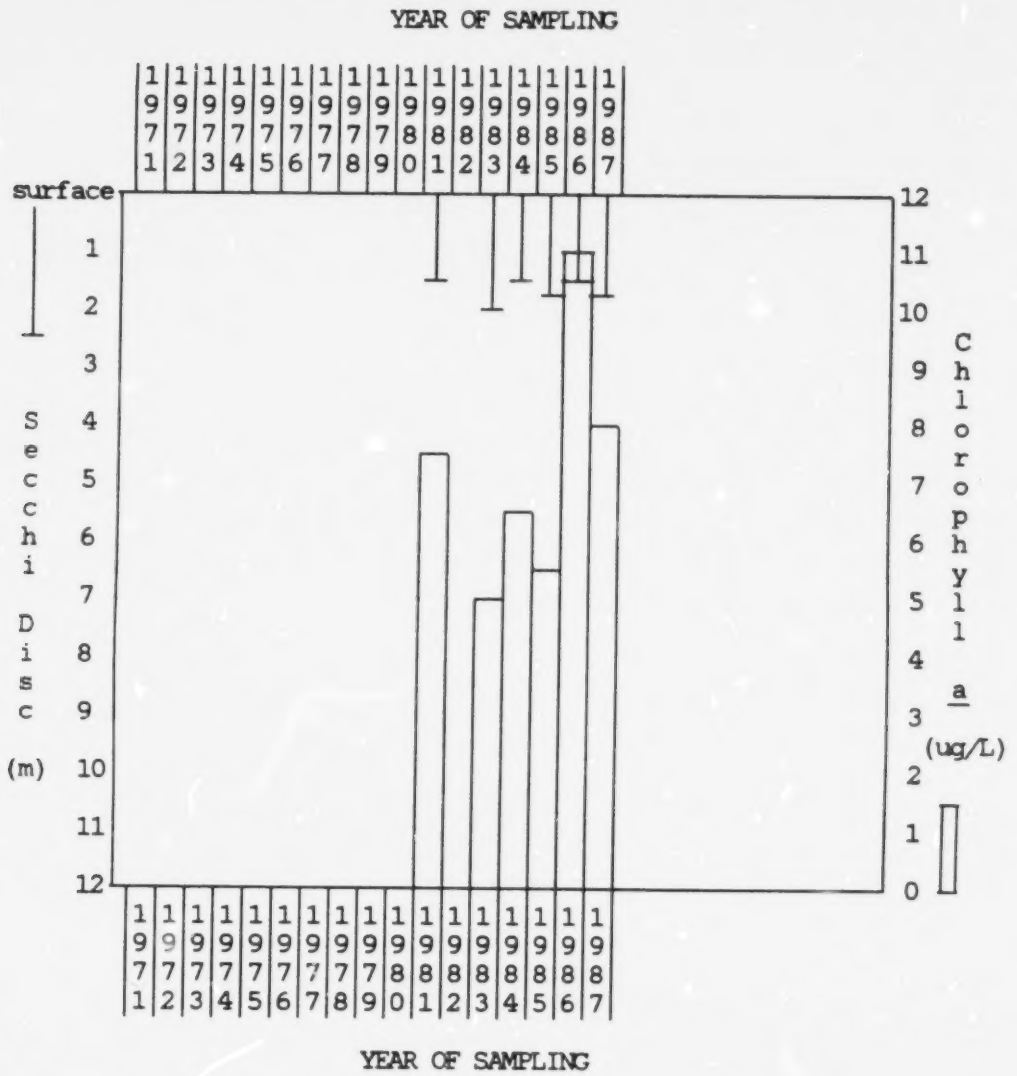
Five samples were collected from Moot Lake in 1987. Secchi disc readings were consistently low, averaging 1.7 m. Chlorophyll a concentrations were high, indicative of high densities of suspended algae. Based on these results, Moot Lake would be considered enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Moot Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Moot Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Moot Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Based on six years of water quality data now available, Moot Lake would be considered enriched with very high algal densities and consistently poor water clarity. Average chlorophyll a concentrations, although lower in 1987 than in 1986 continue to be high. No significant changes in water quality conditions have occurred.

**MOUNTAIN LAKE**

**MINDEN TOWNSHIP**

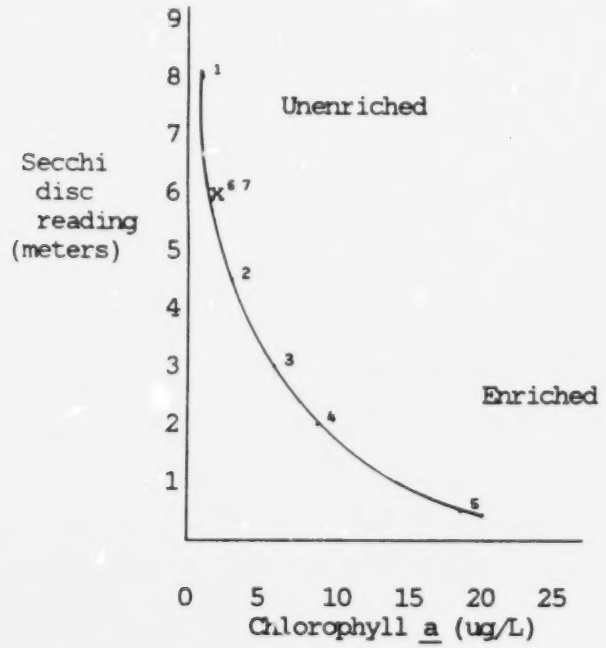
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Mountain Lake in 1987.

| Station | North | | South | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jul 5 | 7.0 | 1.6 | 8.0 | 1.7 |
| Jul 12 | 5.0 | 1.8 | 5.0 | 1.6 |
| Jul 26 | 5.0 | 2.5 | 7.0 | 2.4 |
| Aug 3 | 6.5 | 2.1 | 6.0 | 2.2 |
| Aug 24 | 5.5 | 1.6 | 5.5 | 1.8 |
| Sep 7 | 6.0 | 1.3 | 6.0 | 1.2 |
| | 5.8 | 1.8 | 6.2 | 1.8 |

Once again, a good sampling program was conducted on Mountain Lake, with samples collected on six occasions in 1987. The two stations had very similar water quality. Secchi disc readings were consistently high and algal densities were low based on recorded chlorophyll a concentrations. Mountain Lake would be considered unenriched with good water quality. We hope that another good sampling program is carried out in 1988.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Mountain Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Mountain Lake - 1987
[6] North
[7] South

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Mountain Lake (North station). Averages based on fewer than 4 points were considered unreliable and were not graphed.

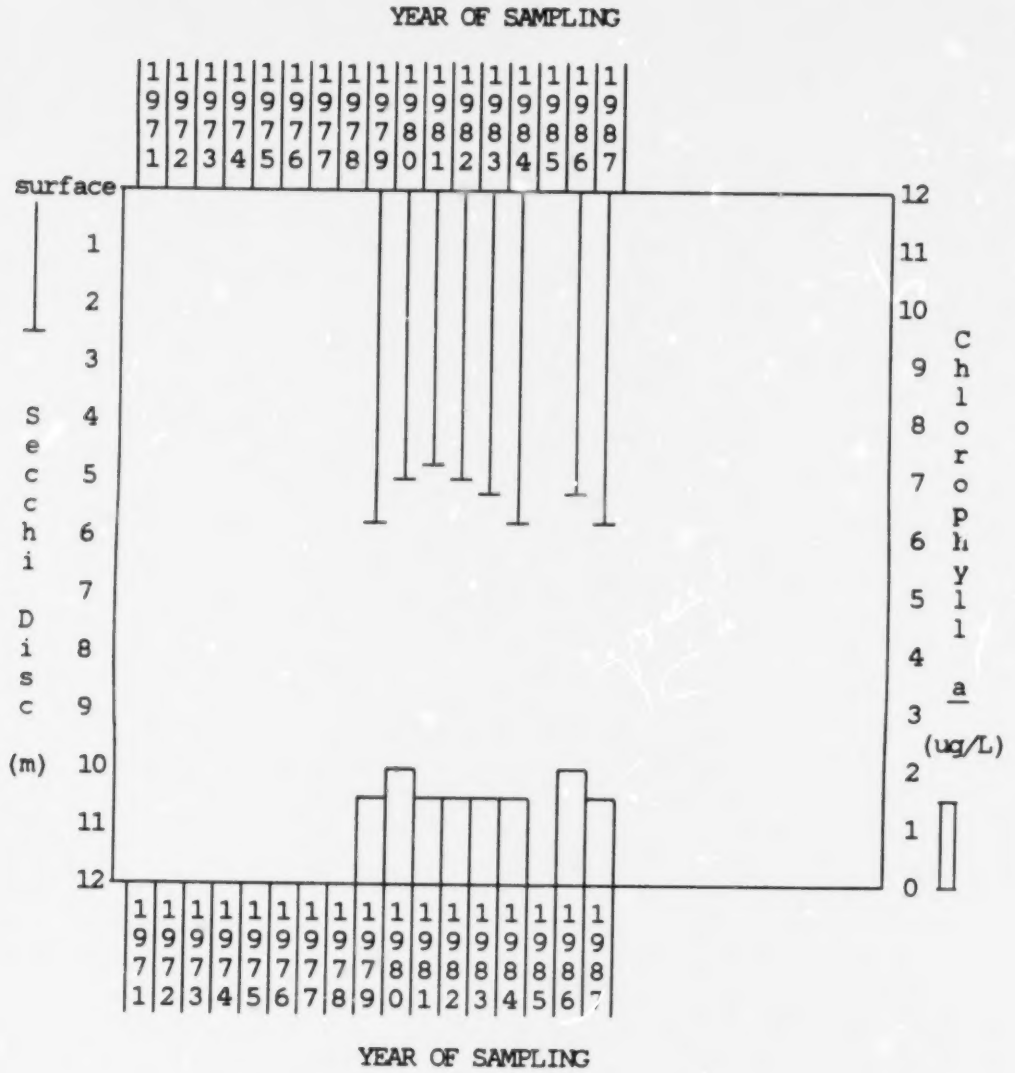
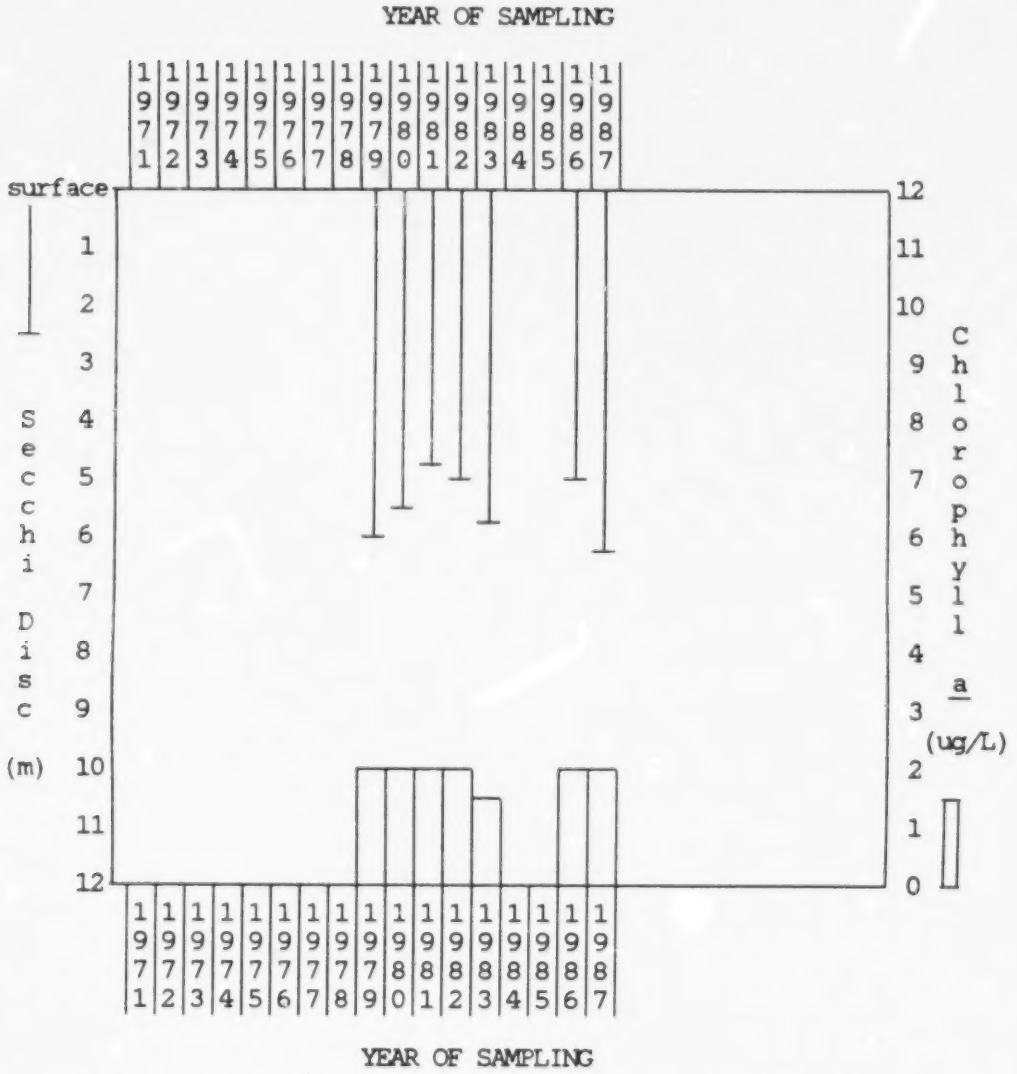


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Mountain Lake (South station). Averages based on fewer than 4 points were considered unreliable and were not graphed.




We now have a good historical record of water quality for Mountain Lake. Samples have been collected for eight and seven years, respectively, from the North and South sampling stations. This historical record shows that the water quality of Mountain Lake has been consistently excellent since sampling began in 1979.

MULDREW LAKE

MUSKOKA, WOOD & MORRISON WARDS
TOWN OF GRAVENHURST

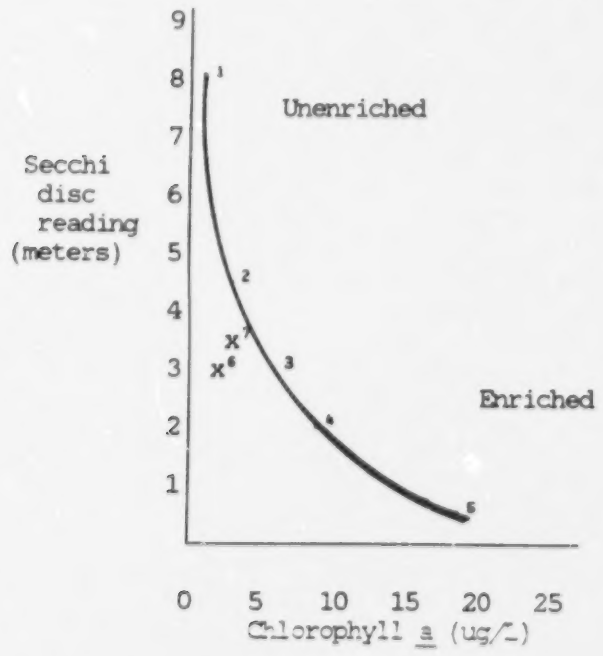
DISTRICT MUNICIPALITY OF
MUSKOKA

Table 1: Secchi Disc (m) and Chlorophyll *a* (ug/L) data collected from Muldrew Lake in 1987.

| Station | Middle | | South | |
|---|---|---|---|---|
| Date | S.D. | Chl. *a* | S.D. | Chl. *a* |
| May 18 | 3.5 | 2.0 | 3.0 | 1.6 |
| May 24 | 3.25 | 2.8 | 3.25 | 2.3 |
| May 31 | 3.5 | 2.1 | 3.6 | 2.1 |
| Jun 7 | 3.125 | 1.9 | 3.125 | 1.7 |
| Jun 13 | 3.0 | 2.5 | 3.125 | 3.2 |
| Jul 5 | 3.5 | 3.7 | 3.3 | 3.4 |
| Jul 11 | 3.5 | 2.7 | 3.5 | 2.4 |
| Jul 19 | 3.3 | 4.3 | 3.75 | 3.6 |
| Jul 26 | 4.125 | 3.4 | 4.125 | 6.0 |
| Aug 16 | 4.0 | 6.4 | 4.0 | 8.5 |
| Aug 30 | 3.65 | 4.3 | 4.12 | 15.6 |
| Sep 5 | 4.0 | 2.3 | 4.0 | 2.6 |
| | 3.5 | 3.2 | 3.6 | 4.4 |

See attached page for text.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Muldrew Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Muldrew Lake - 1987
[6] Middle - 1987
[7] South

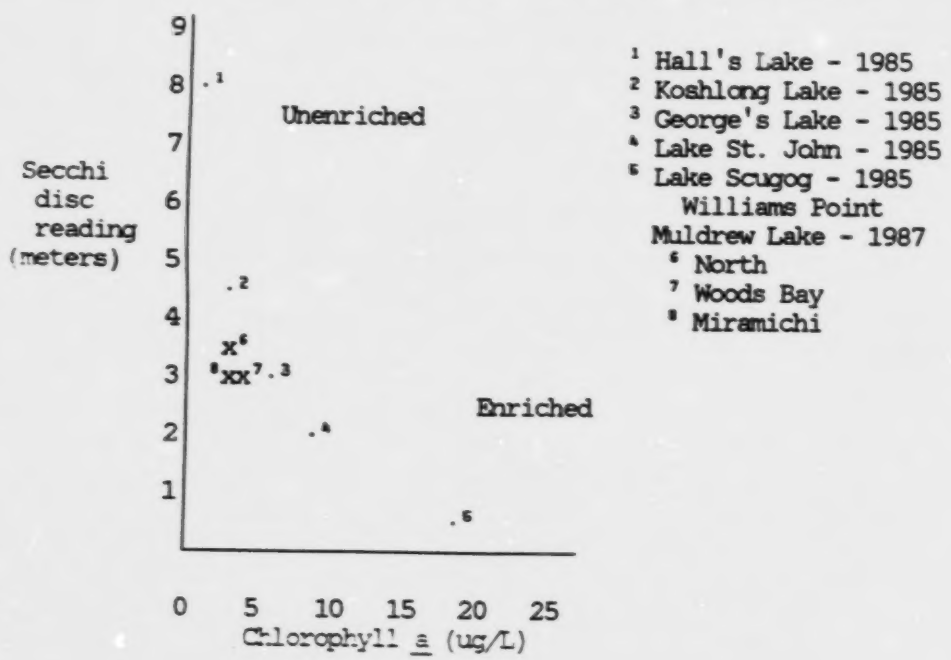
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Muldrew Lake in 1987

| Station | North | | Woods Bay | | Miramichi | |
|---|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | S.D. | Chl.a |
| Jun 20 | - | - | 2.87 | 3.3 | 2.41 | 2.5 |
| Jun 21 | 3.75 | 2.2 | - | - | - | - |
| Jun 28 | 3.25 | 2.6 | 2.11 | 3.4 | 2.16 | 2.8 |
| Jul 5 | - | - | 2.87 | 2.5 | 3.10 | 3.3 |
| Jul 12 | 3.25 | 2.8 | 5.00 | 4.3 | 4.5 | 3.1 |
| Jul 19 | 3.25 | 2.7 | - | - | - | - |
| Jul 26 | - | - | 3.58 | 6.3 | 3.61 | 6.8 |
| Aug 3 | 3.75 | 2.7 | 3.17 | 3.5 | 2.8 | 2.9 |
| Aug 16 | - | - | 3.10 | 4.4 | 3.30 | 2.3 |
| Aug 23 | 4.0 | L.A. | - | - | - | - |
| Aug 30 | 3.5 | 2.9 | 2.7 | 3.3 | 2.9 | 3.5 |
| Sep 6 | - | - | 3.00 | 2.5 | 2.65 | 3.3 |
| | 3.5 | 2.7 | 3.2 | 3.7 | 3.0 | 3.4 |

L.A. : Laboratory Accident

See attached page for text.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Muldrew Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.



MUSKOKA, WOOD & MORRISON WARDS
TOWN OF GRAVENHURST

DISTRICT MUNICIPALITY OF
MUSKOKA

An excellent sampling program was conducted on Muldrew Lake in 1987. At least seven samples were collected from each of six sampling locations. Secchi disc readings were indicative of a moderately low degree of water clarity; average readings ranged from 3.0 m at Miramichi to 3.6 m at South Muldrew. Based on reported chlorophyll a concentrations, densities of suspended algae were moderately high at all stations. Concentrations ranged from 2.7 ug/L at the North station to 4.4 ug/L at South Muldrew. Based on these results, Muldrew Lake would be considered moderately enriched at all sampling stations.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Muldrew Lake (Middle). Averages based on fewer than 4 points were considered unreliable and were not graphed.

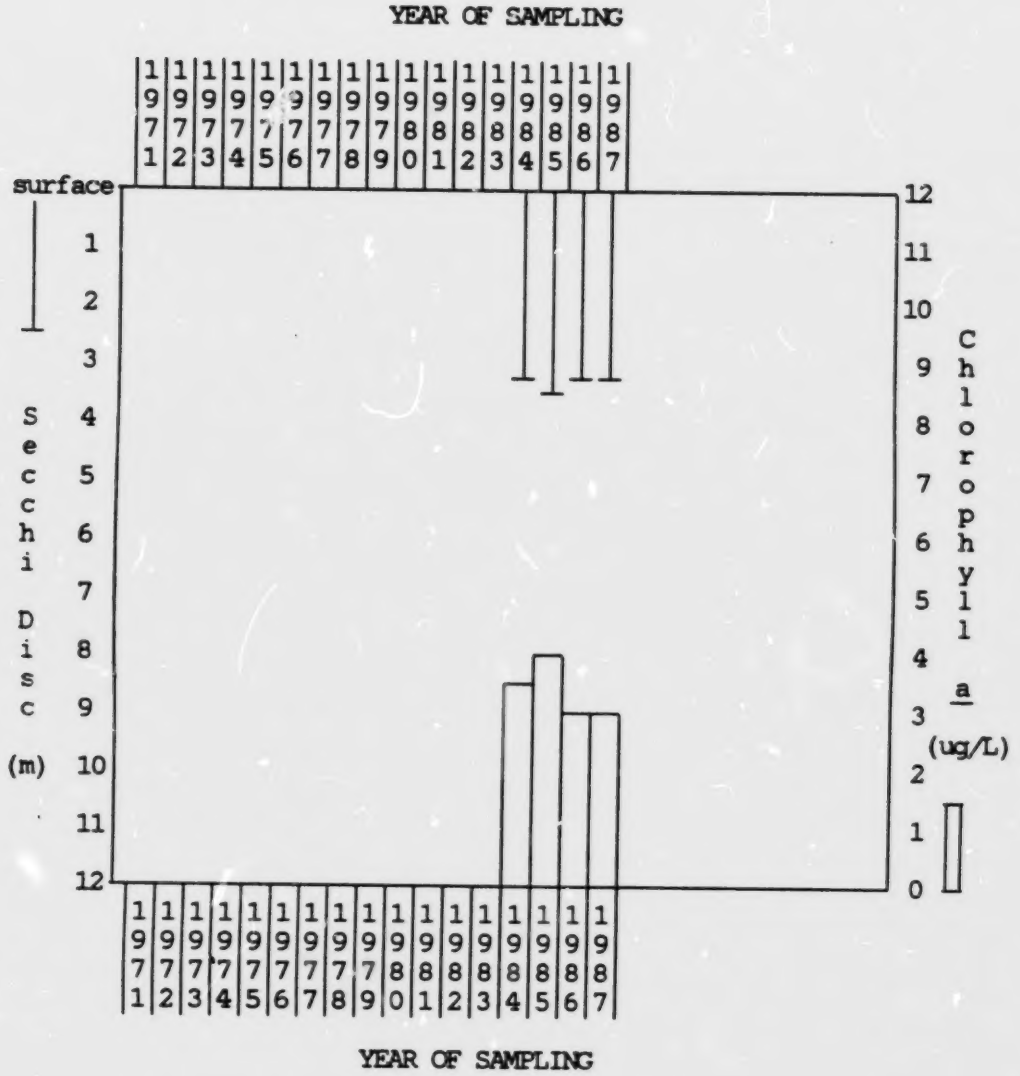


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Muldrew Lake (South). Averages based on fewer than 4 points were considered unreliable and were not graphed.

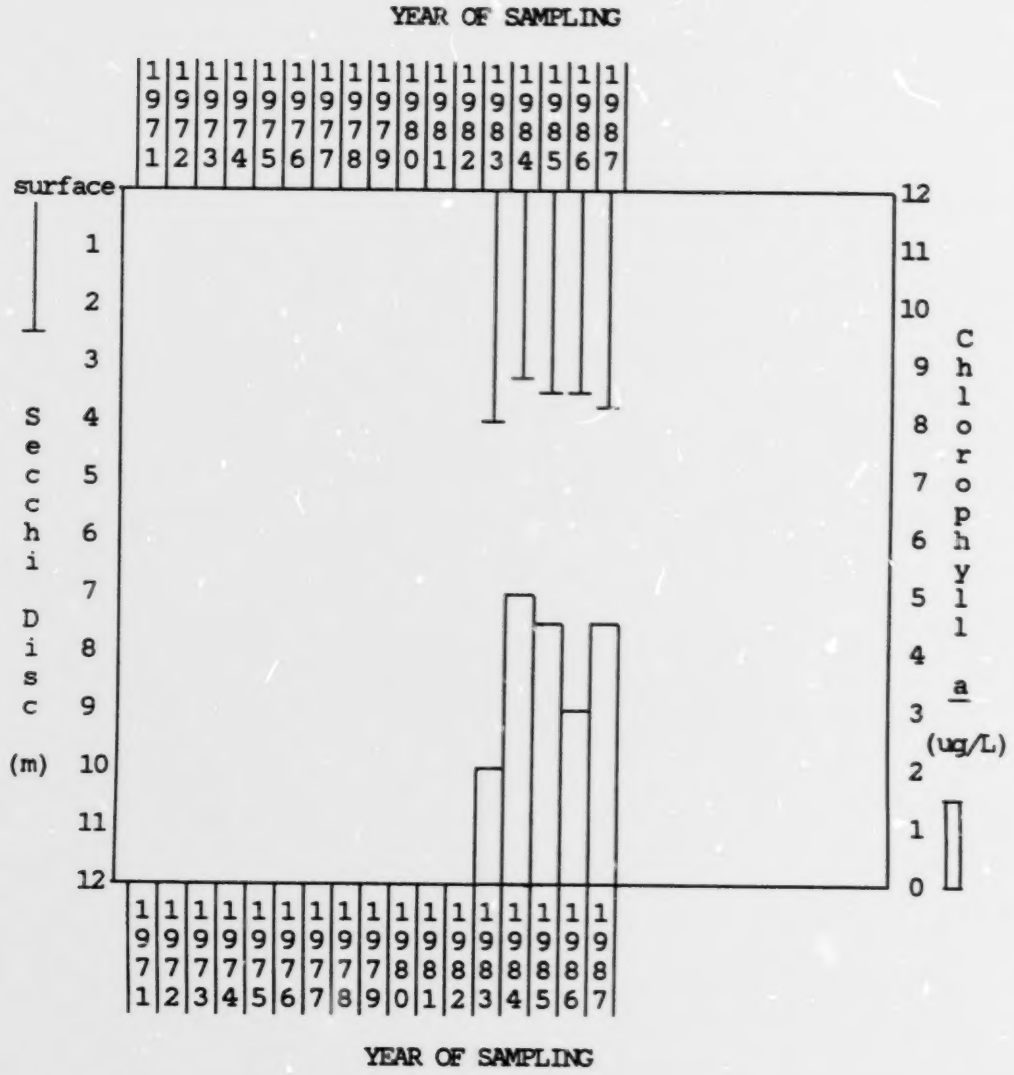


Figure 4 : Historical record of average Secchi disc and chlorophyll a results for Muldrew Lake (North). Averages based on fewer than 4 points were considered unreliable and were not graphed.

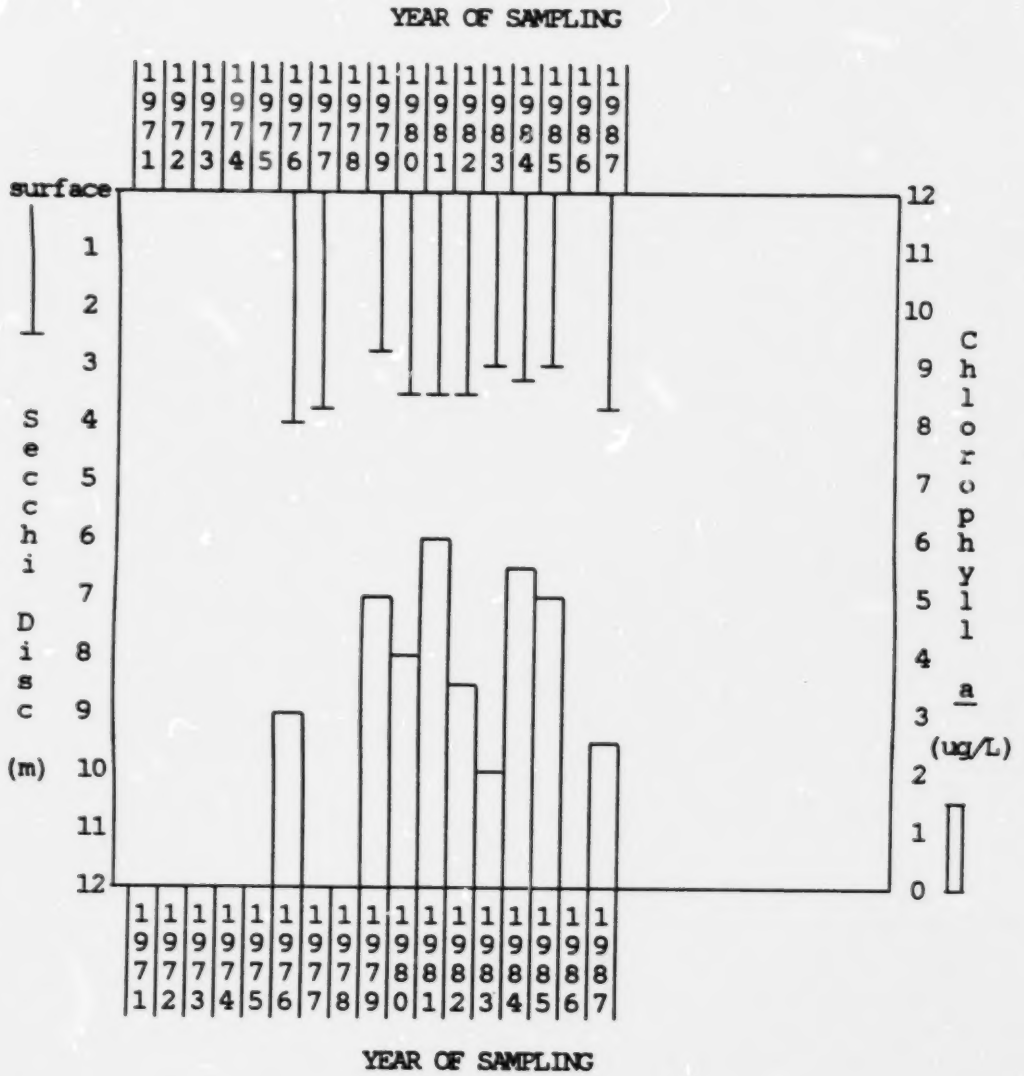


Figure 5 : Historical record of average Secchi disc and chlorophyll a results for Muldrew Lake (Woods Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.

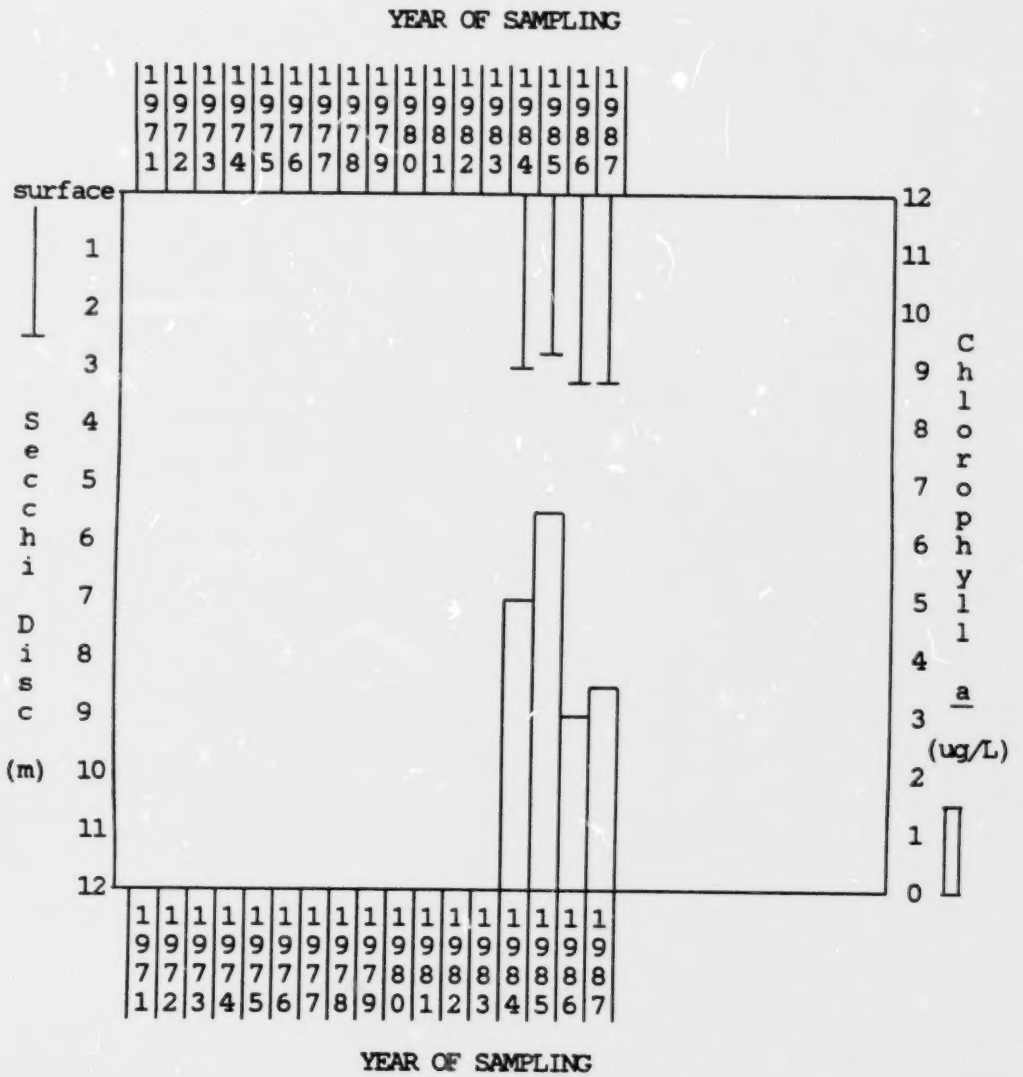
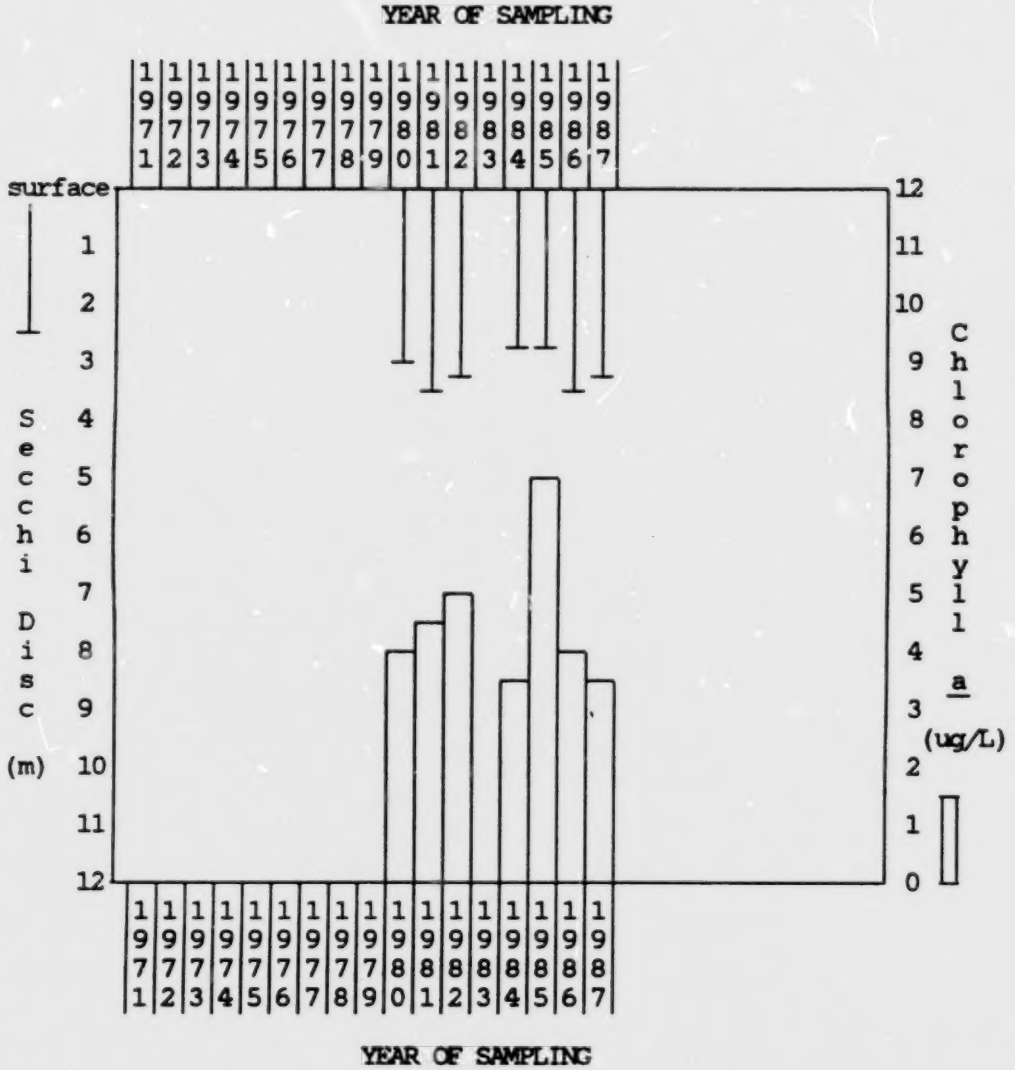


Figure 6 : Historical record of average Secchi disc and chlorophyll a results for Muldrew Lake (Miramichi). Averages based on fewer than 4 points were considered unreliable and were not graphed.




We have a good historical record of water quality for Muldrew Lake. At least four years of data are available for each of five sampling stations. Throughout the period of record, water clarity has been moderately low at all stations and algal densities, though variable, have generally been moderately high.

OAK LAKE

BELMONT & METHUEN TOWNSHIPS

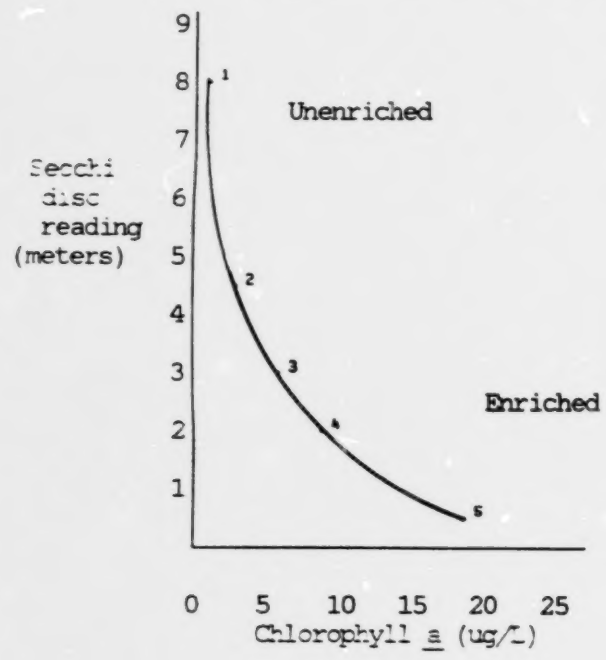
PETERBOROUGH COUNTY

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Oak Lake in 1987.

| Station | Jean P Island | | Trout Island | | North Bay | |
|---|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | S.D. | Chl.a |
| Jun 21 | 4.0 | 1.6 | 4.0 | 1.7 | 4.0 | 3.7 |
| Jul 5 | 3.75 | 1.7 | 4.0 | 1.6 | - | - |
| Aug 11 | 4.5 | 1.9 | 5.0 | 1.8 | 4.5 | 2.6 |

Insufficient data were collected from Oak Lake in 1987 to provide a definitive picture of lake quality. From the results obtained, it appears that Oak Lake has low to moderate enrichment. Chlorophyll a concentrations in the North Bay are somewhat higher than those reported for stations at Jean P and Trout Islands. More frequent sampling, as was carried previously in 1986, would allow a fuller assessment of lake water quality to be made.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Oak Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Oak Lake - 1987
- insufficient data

OTTER LAKE

SHERBORNE TOWNSHIP

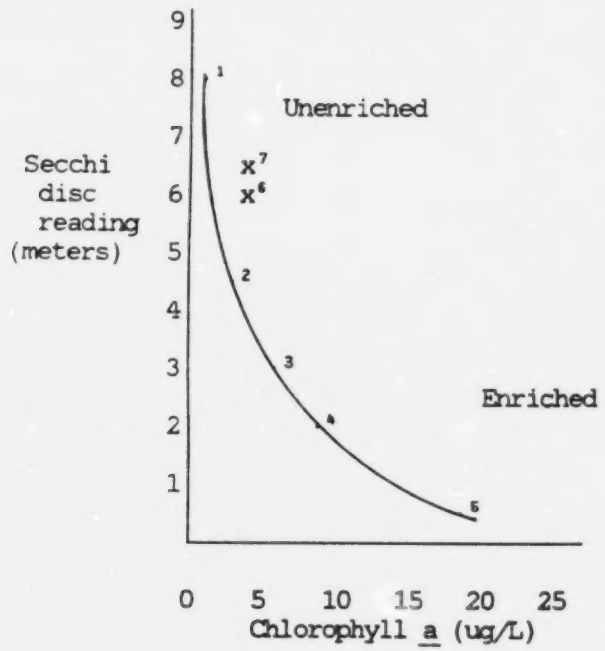
HALIBURTON COUNTY

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Otter Lake in 1987.

| Station | East End | | West End | |
|---|---|---|---|---|
| Date | S.D. | Chl.*a* | S.D. | Chl.*a* |
| Jul 9 | 6.0 | 5.4 | 6.0 | 3.9 |
| Jul 23 | 5.0 | 2.5 | 6.7 | 3.2 |
| Jul 31 | 6.5 | 5.2 | 6.0 | 3.7 |
| Sep 3 | 7.0 | 2.4 | 6.7 | 3.6 |
| | 6.1 | 3.8 | 6.4 | 3.6 |

Samples were collected from Otter Lake on four occasions in 1987, an improvement over the 1986 sampling frequency. Secchi disc readings were high at both stations, averaging over 6 m. This indicates a high degree of water clarity. Chlorophyll *a* concentrations were moderately high, averaging 3.8 ug/L and 3.6 ug/L, respectively, at the East and West ends of the lake. Based on these results, Otter Lake would be considered unenriched to moderately enriched. We hope you continue sampling in 1988.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Otter Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Otter Lake - 1987
[6] East
[7] West

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Otter Lake (East). Averages based on fewer than 4 points were considered unreliable and were not graphed.

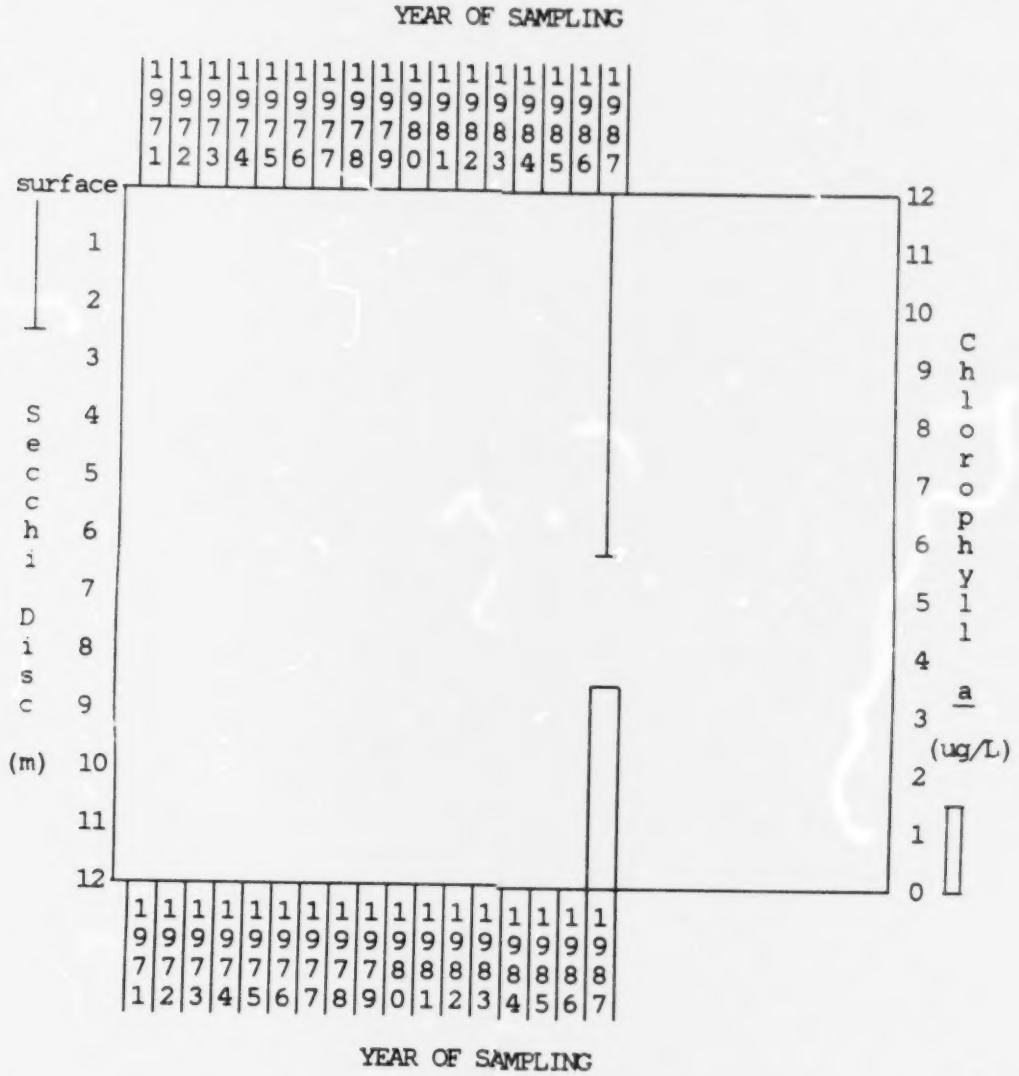
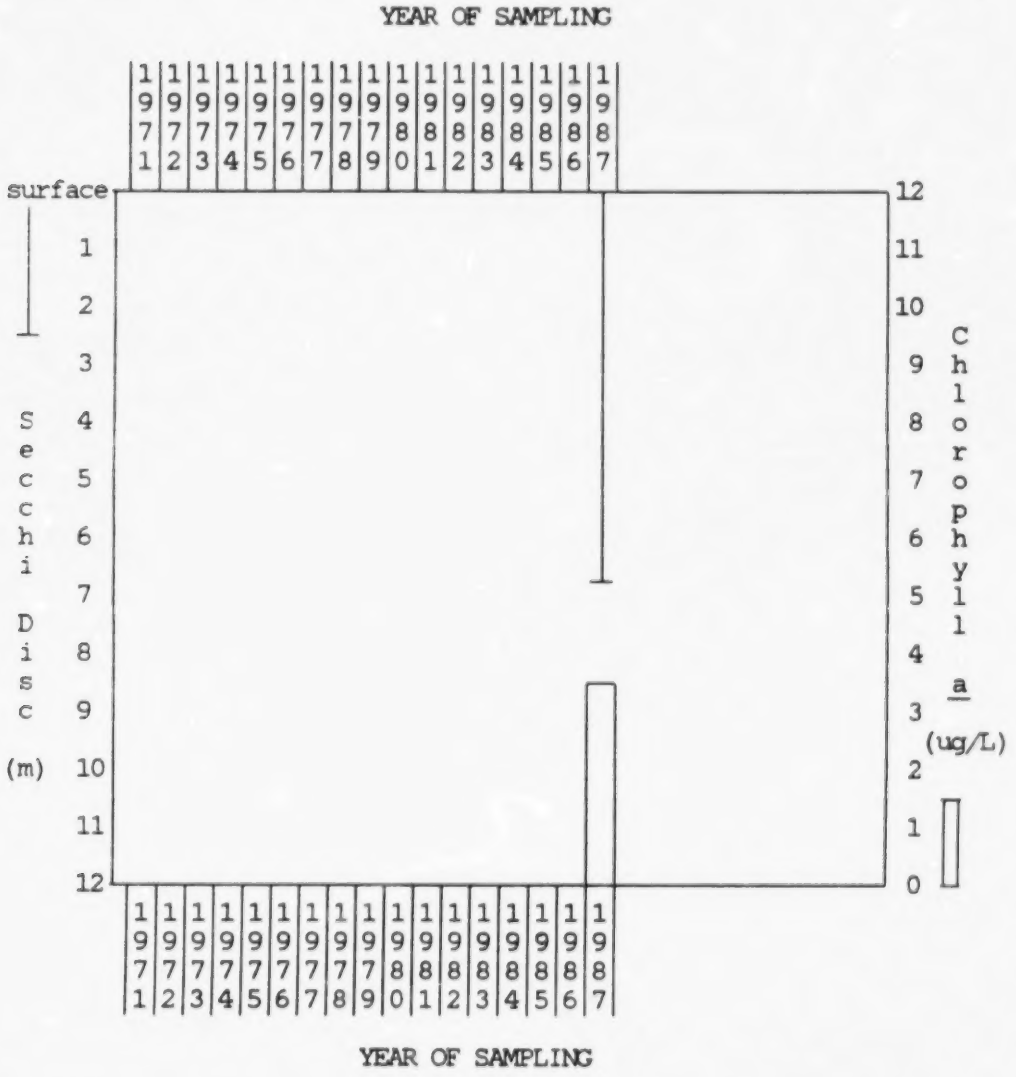


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Otter Lake (West). Averages based on fewer than 4 points were considered unreliable and were not graphed.




Because only one year of reliable data is available, we are unable to assess long-term trends in the water quality of Otter Lake. Samples were collected from Otter Lake in previous years, but not in sufficient numbers to provide reliable averages for evaluating historical trends.

**PENINSULA LAKE**

**SINCLAIR & FRANKLIN WARDS**
**TOWNSHIP OF LAKE OF BAYS**

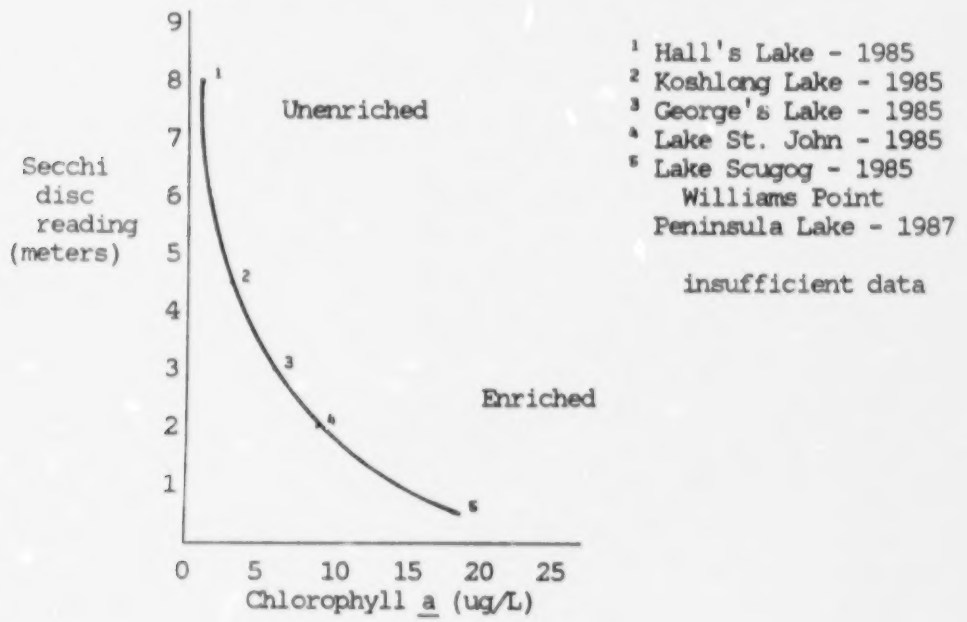
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Peninsula Lake in 1987.

| Station | Wolf Bay | | Deerhurst | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jul 18 | - | - | 4.75 | - |
| Aug 3 | 6.1 | 2.5 | 5.0 | 2.1 |
| Aug 16 | 5.5 | 2.0 | 5.0 | 2.1 |
| Oct 11 | 4.0 | 1 2 | - | - |

Insufficient data were collected from Peninsula Lake in 1987 to allow an accurate assessment of lake water quality to be made. We recomend that, if possible, a minimum of six samples be collected over the summer in 1988.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Peninsula Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.



**PERCY LAKE**

**HARBURN TOWNSHIP**

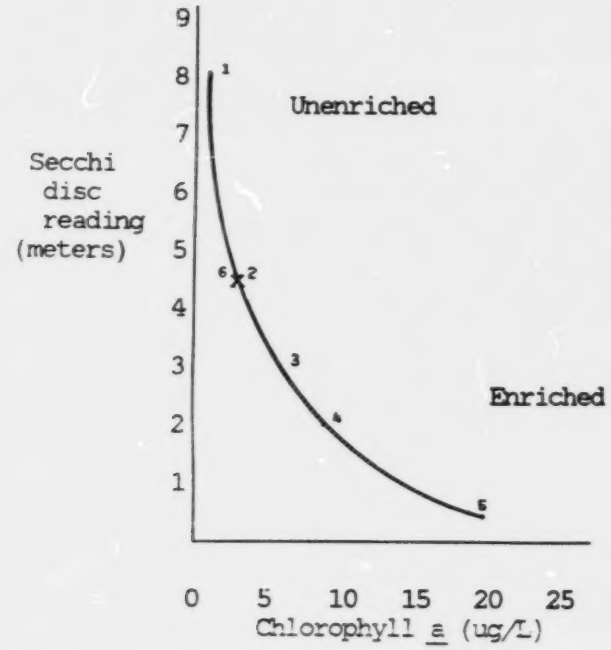
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Percy Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jul 5 | 4.0 | 2.1 |
| Jul 12 | 4.5 | 2.1 |
| Jul 19 | 4.0 | 3.3 |
| Aug 16 | 4.5 | 2.0 |
| Aug 23 | 4.0 | 3.1 |
| Aug 29 | 4.8 | 2.8 |
| | 4.3 | 2.6 |

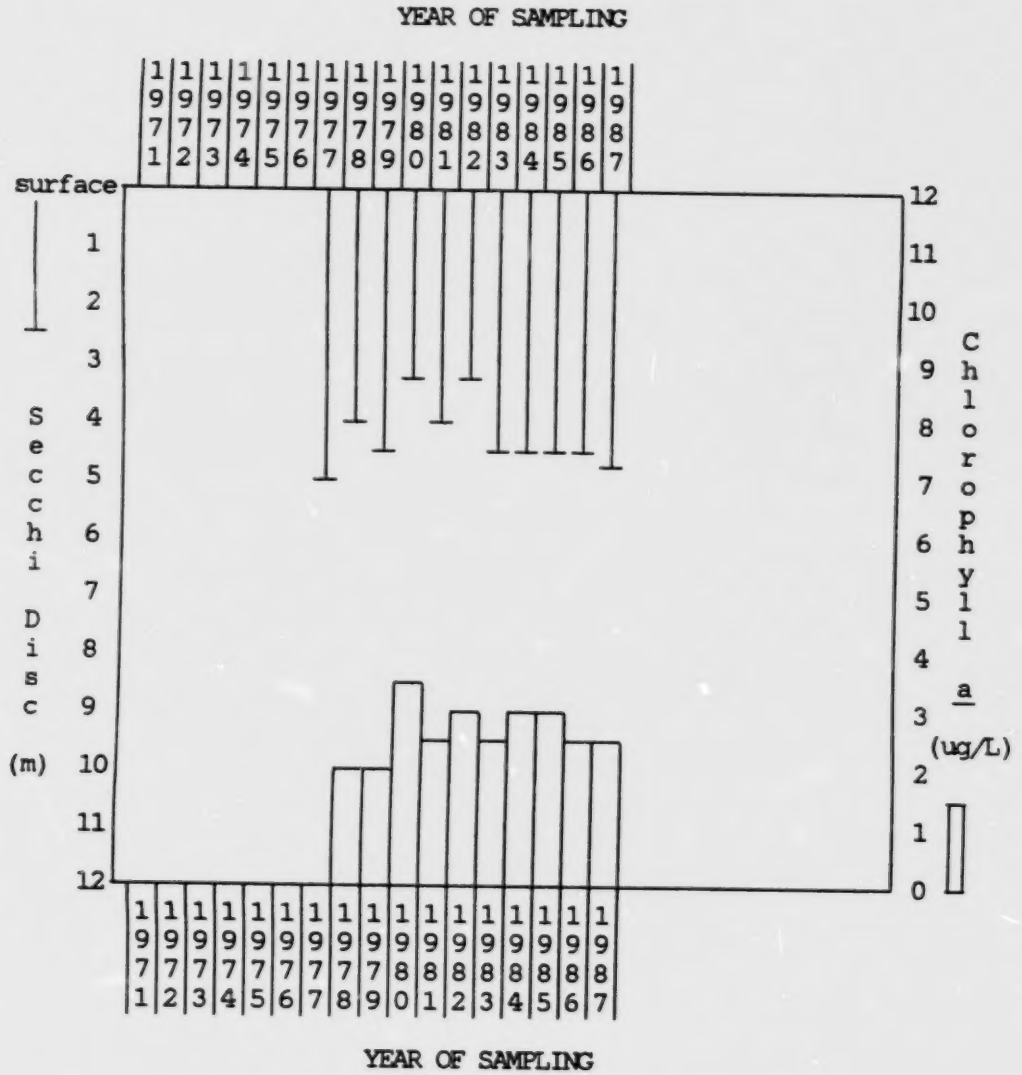
A good sampling program was undertaken on Percy Lake again in 1987 with sampling on six occasions. Secchi disc readings ranged from 4.0 to 4.8 m, indicating a moderate degree of water clarity. Chlorophyll a concentrations ranged from 2.1 to 3.3 ug/L, suggesting moderate densities of suspended algae. Based on these results, Percy Lake would be classified as moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Percy Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




1 Hall's Lake - 1985
2 Koshlong Lake - 1985
3 George's Lake - 1985
4 Lake St. John - 1985
5 Lake Scugog - 1985 Williams Point
6 Percy Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Percy Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




An excellent historical record of water quality information is available for Percy Lake with eleven years of data. Throughout this period of record, the water quality of Percy Lake has changed little.

**PINE LAKE**

**OAKLEY WARD**
**TOWN OF BRACEBRIDGE**

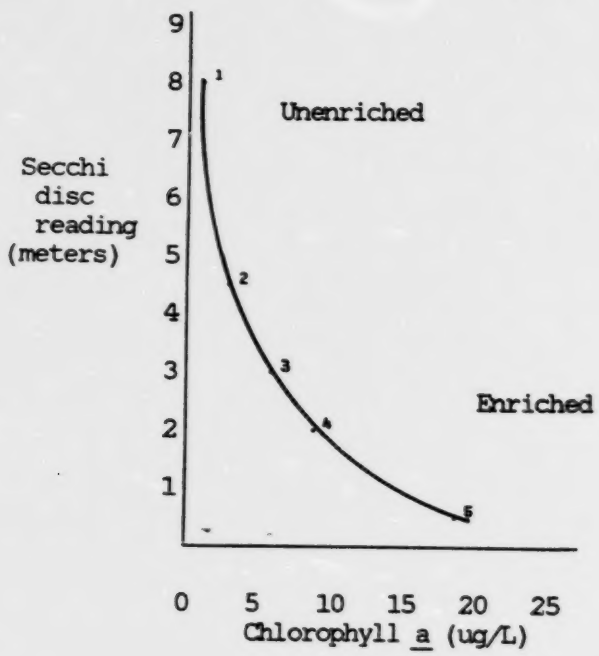
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Pine Lake in 1987.

| Station | West | | East | |
|---|---|---|---|---|
| Date | S.D. | Chl.*a* | S.D. | Chl.*a* |
| May 24 | 2.5 | 5.2 | 2.5 | 4.1 |
| May 31 | 3.0 | 2.0 | 3.0 | 1.5 |
| Jun 28 | 3.5 | 1.6 | 3.5 | 1.3 |

Insufficient data were collected from Pine Lake in 1987 to allow an accurate assessment of lake water quality to be made. We recommend that in 1988 a minimum of six samples be collected over the summer.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Pine Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Pine Lake - 1987
-insufficient data

**REBECCA LAKE**

**SINCLAIR TOWNSHIP**
**TOWNSHIP OF LAKE OF BAYS**

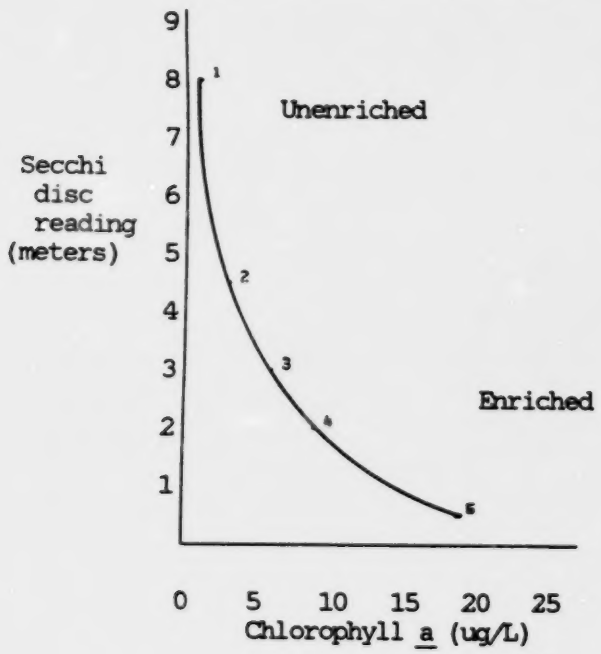
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Rebecca Lake in 1987.

| Station | Centre | | | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jul 4 | 4.0 | 1.5 | - | - |
| Aug 27 | 5.0 | 2.4 | 5.5 | 1.2 |

Insufficient data were collected from Rebecca Lake in 1987 to allow an assessment of lake water quality to be made. We recommend that, if possible, one station at the centre of the lake be sampled on at least six occasions in 1988.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Rebecca Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Rebecca Lake - 1987
-insufficient data

**RIL LAKE**

**RIDOUT WARD**
**TOWN OF LAKE OF BAYS**

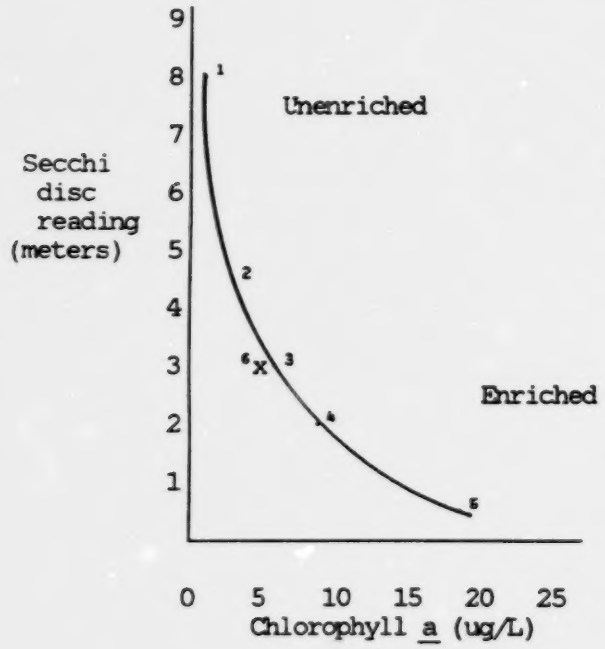
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Ril Lake in 1987.

| Station | Centre | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 17 | 2.5 | 3.2 |
| Jul 1 | 3.2 | 3.5 |
| Jul 15 | 3.1 | 6.4 |
| Aug 5 | 3.0 | 6.3 |
| | 3.0 | 4.9 |

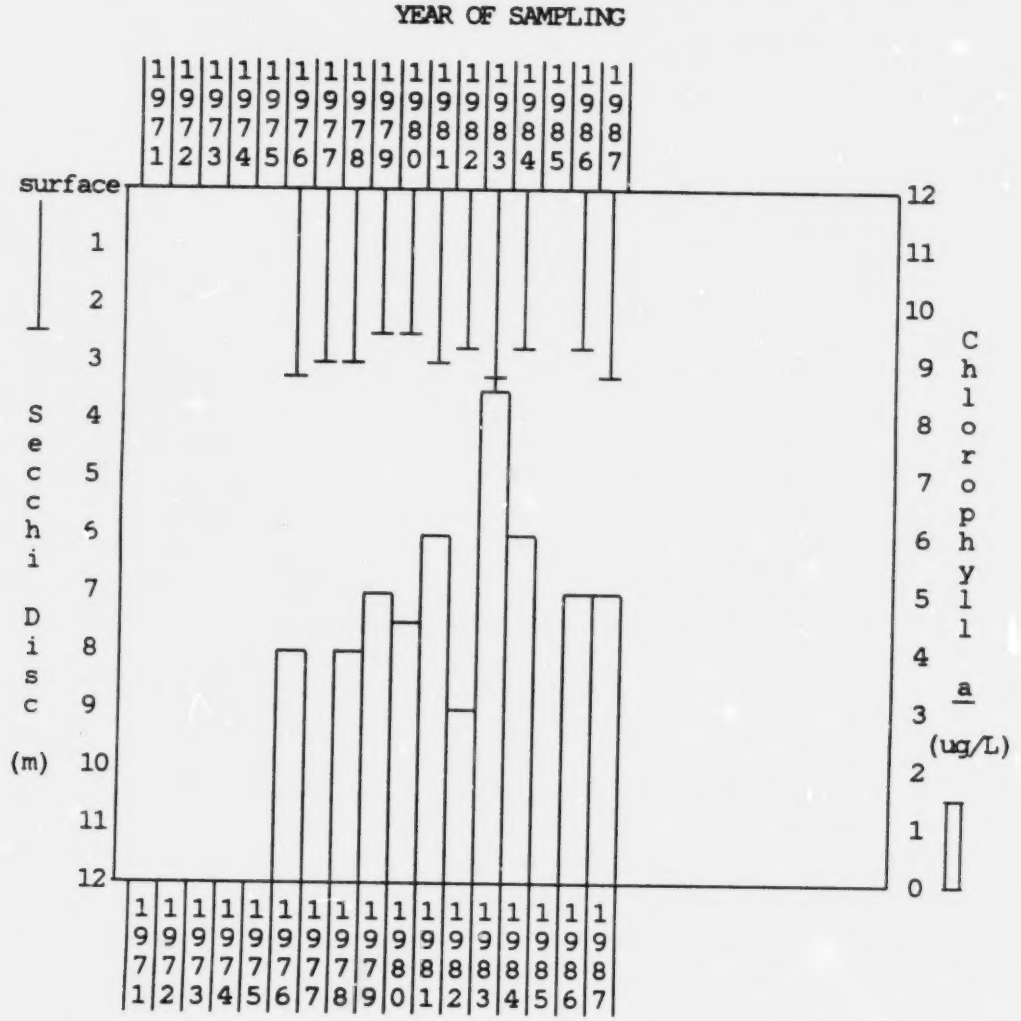
Four samples were collected from Ril Lake in 1987. Water clarity was consistently low, with secchi disc readings averaging 3.0 m. Chlorophyll a concentrations were high, particularly in samples collected July 15 and August 5. This indicates that densities of suspended algae were high. Based on these results, Ril Lake would be classified as enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Ril Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Ril Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Ril Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




There are now eleven years of Self-Help data available for Ril Lake. Throughout this period of record, water clarity has been consistently low and densities of suspended algae have been high. Average chlorophyll a concentrations were especiallly high in 1983.

**SALERNO LAKE**

**SNOWDON & GLAMORGAN TOWNSHIPS**

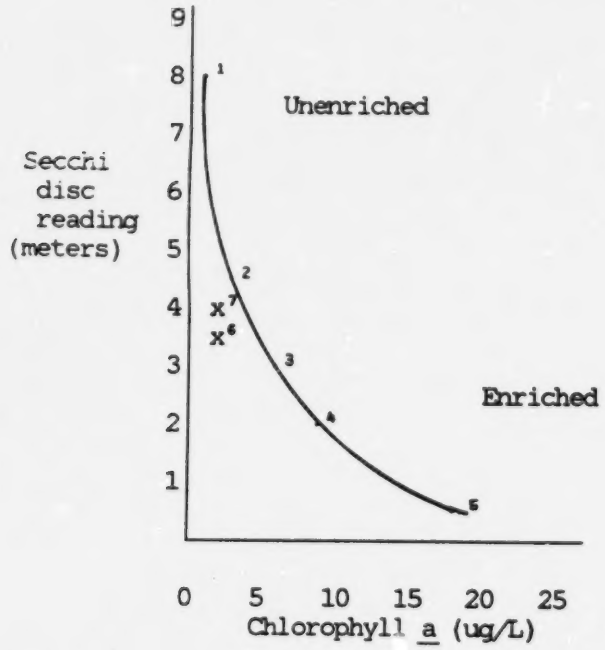
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Salerno Lake in 1987.

| Station | South | | North | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 20 | 3.75 | 2.9 | 4.0 | 3.3 |
| Jul 9 | 3.5 | 1.8 | 4.5 | 1.8 |
| Jul 12 | 3.75 | 1.7 | 4.25 | 2.0 |
| Aug 4 | 3.0 | 4.4 | 3.5 | 2.9 |
| Aug 23 | 3.25 | 3.0 | 3.75 | 2.8 |
| | 3.45 | 2.8 | 4.0 | 2.6 |

In 1988, samples were collected on five occasions from each of two locations in Salerno Lake. Secchi disc readings averaged 3.45 m at the south station and 4.0 m at the north station, indicating a moderate degree of water clarity. Chlorophyll a densities averaged 2.8 ug/L and 2.6 ug/L at the south and north stations respectively, indicating that densities of suspended algae are moderate. Based on these results, Salerno Lake would be considered moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Salerno Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Salerno Lake - 1986
[6] South
[7] North

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Salerno Lake (South). Averages based on fewer than 4 points were considered unreliable and were not graphed.

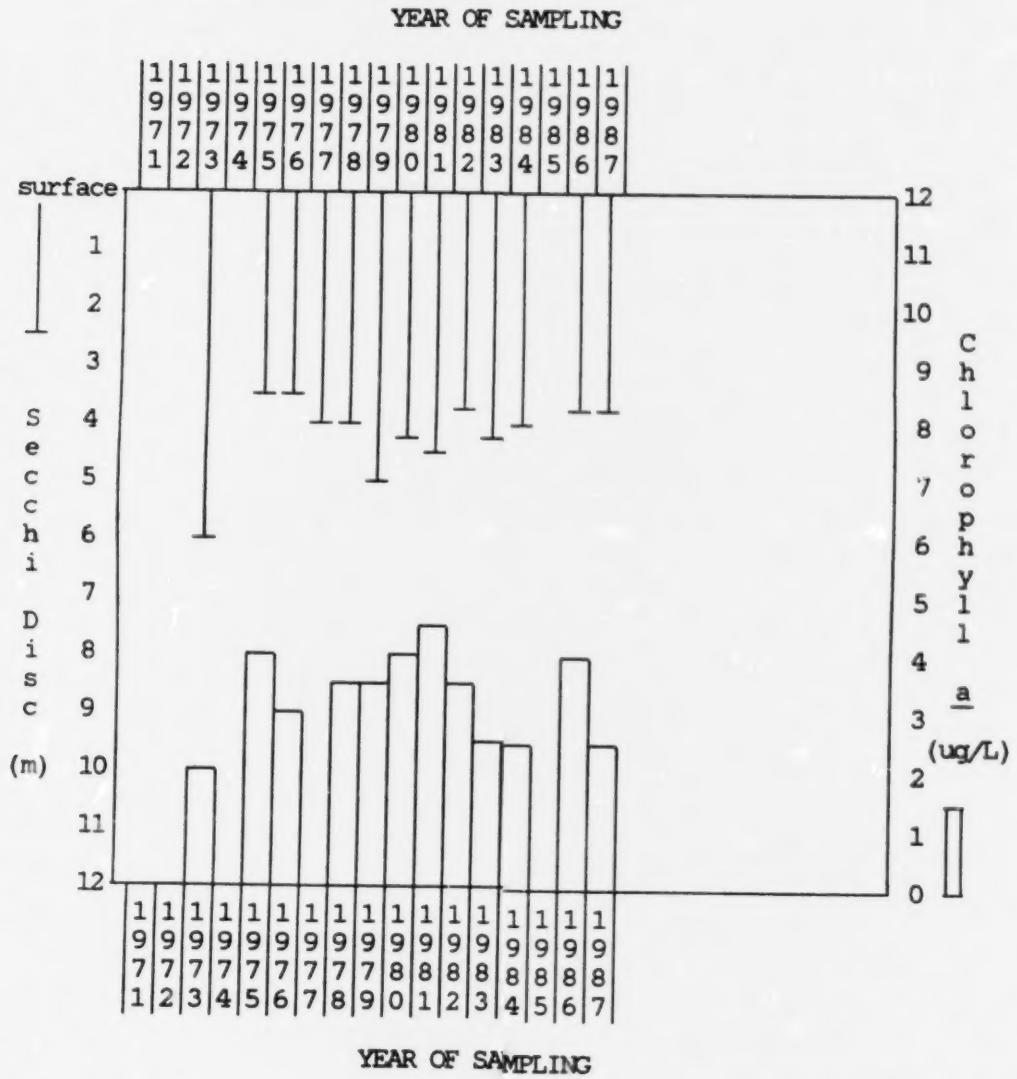
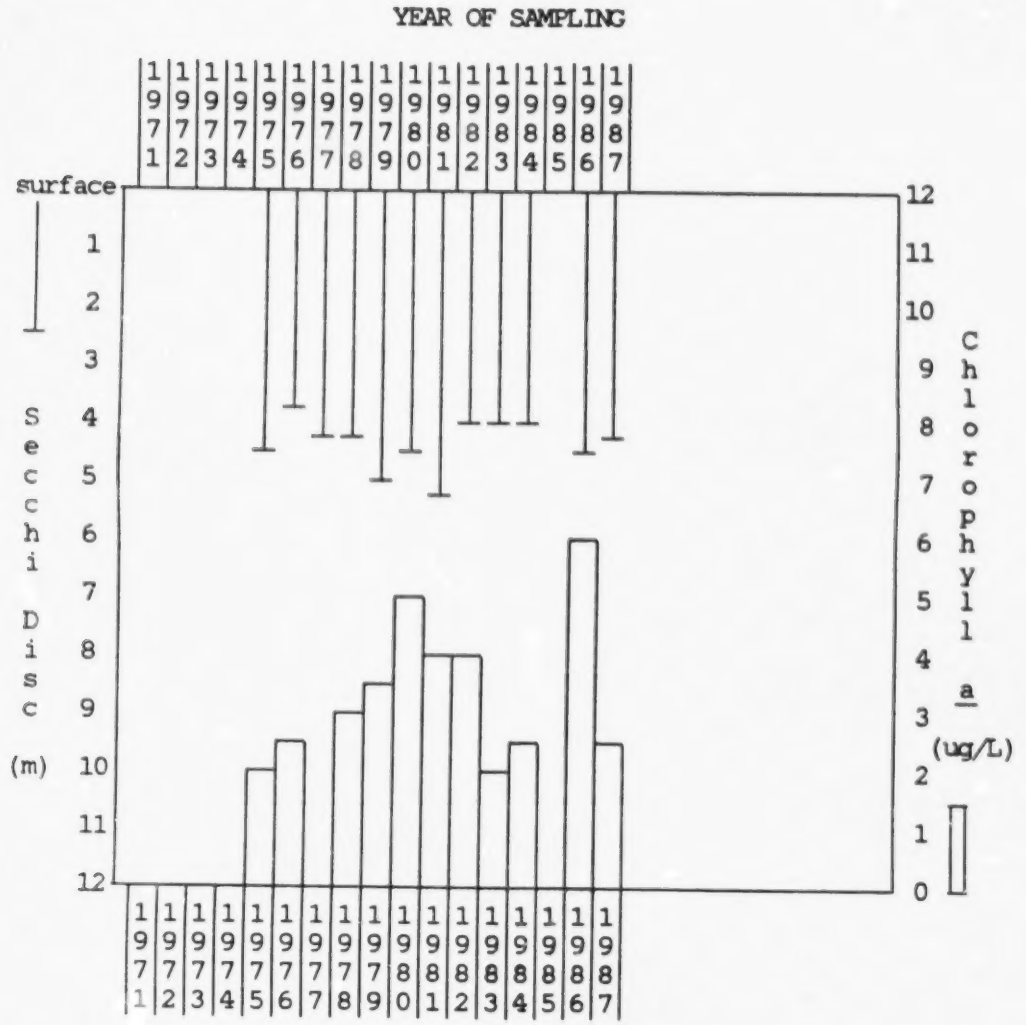


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Salerno Lake (North). Averages based on fewer than 4 points were considered unreliable and were not graphed.




We have an excellent historical record of water quality for Salerno Lake, with twelve years of data for the North sampling station and thirteen years of data for the South station. Water quality has remained fairly constant throughout this period of record. Although some fluctuations have occured, the degree of water clarity and the densities of suspended algae observed indicate that Salerno Lake is moderately enriched.

**SALMON LAKE**

**CAVENDISH TOWNSHIP**

**COUNTY OF PETERBOROUGH**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Salmon Lake in 1987.

| Station | South | | North | | |
|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | |
| May 24 | 4.0 | UR | 4.5 | 1.6 | UR - unreliable result |
| Jul 16 | 8.5 | 1.1 | 9.0 | 1.0 | |
| Aug 4 | 8.0 | 1.3 | 8.5 | 1.4 | |
| Aug 9 | 6.5 | 2.4 | 7.0 | 4.2 | |
| Sep 8 | 6.0 | 1.1 | 7.0 | 1.2 | |
| Sep 12 | 6.5 | 1.2 | 7.0 | 1.6 | |
| | 6.5 | 1.4 | 7.2 | 1.8 | |

A good sampling program was carried out on Salmon Lake in 1987. Six samples were collected from each of two stations between May 24 and September 12. Water quality was similar at the sampling stations. Secchi depth measurements averaged 6.5 and 7.2 m at the south and north stations respectively, indicating a high degree of water clarity. Densities of suspended algae were low. Chlorophyll a concentrations averaged 1.4 ug/L at the south station and 1.8 ug/L at the north station. These results indicate Salmon Lake is unenriched with good water quality.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Salmon Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.

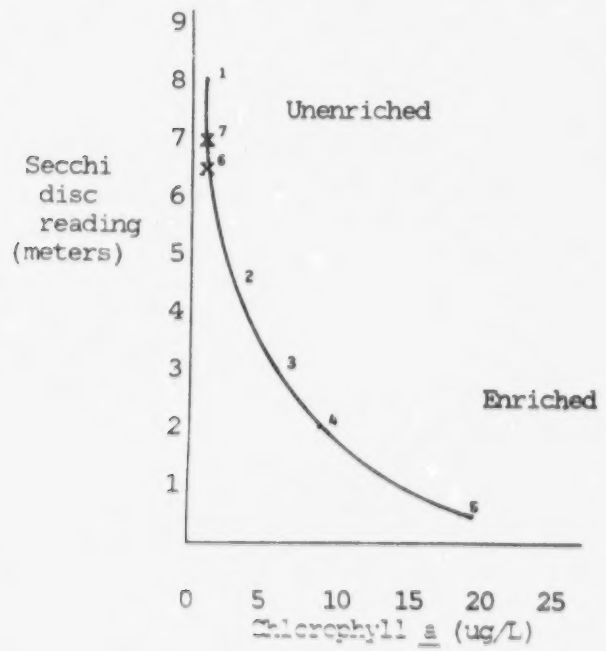


Figure 2 : Summary of results for Secchi disc (m) and chlorophyll a (ug/L) from Salmon Lake (South station) for 1987. Seasonal mean data (more than 6 sampling dates) only. A minimum of 4 results was required for graphing.

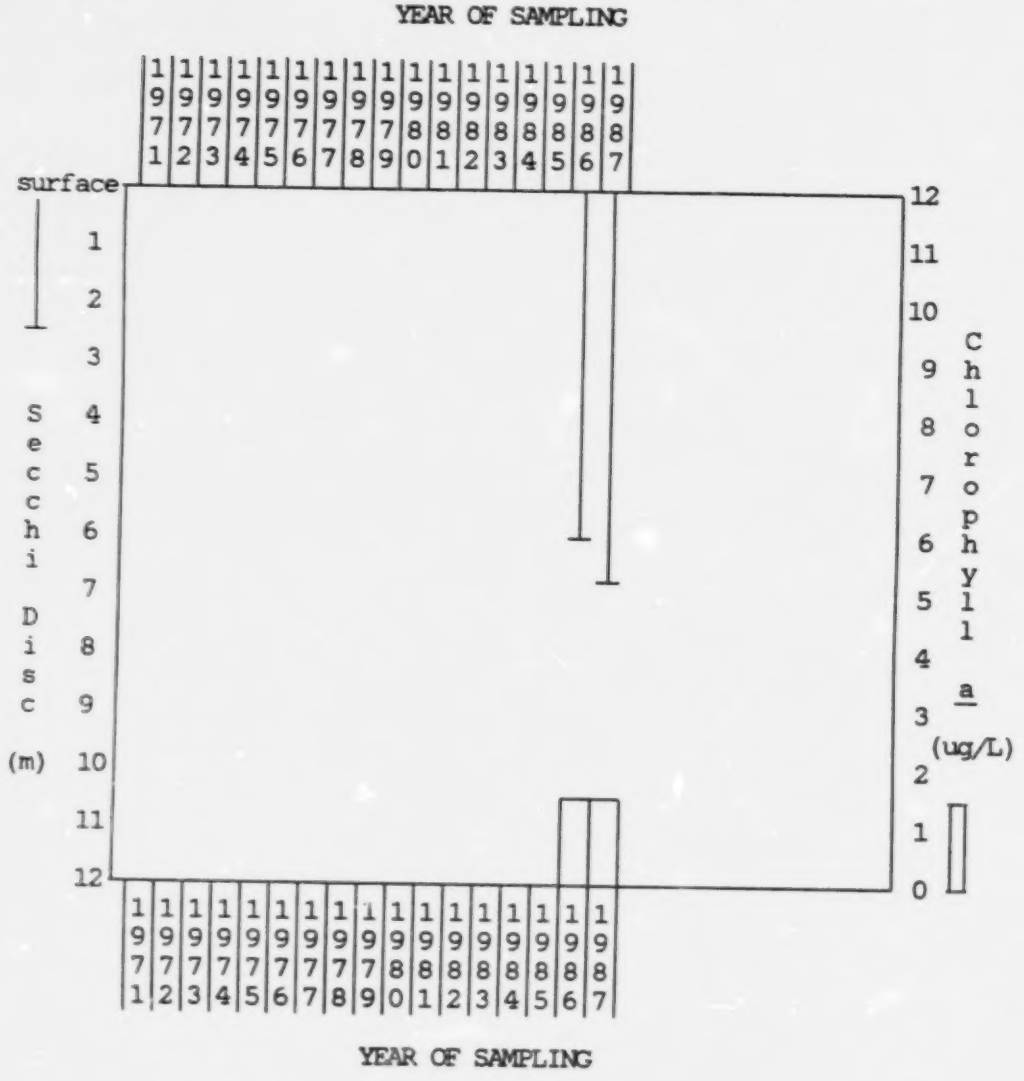
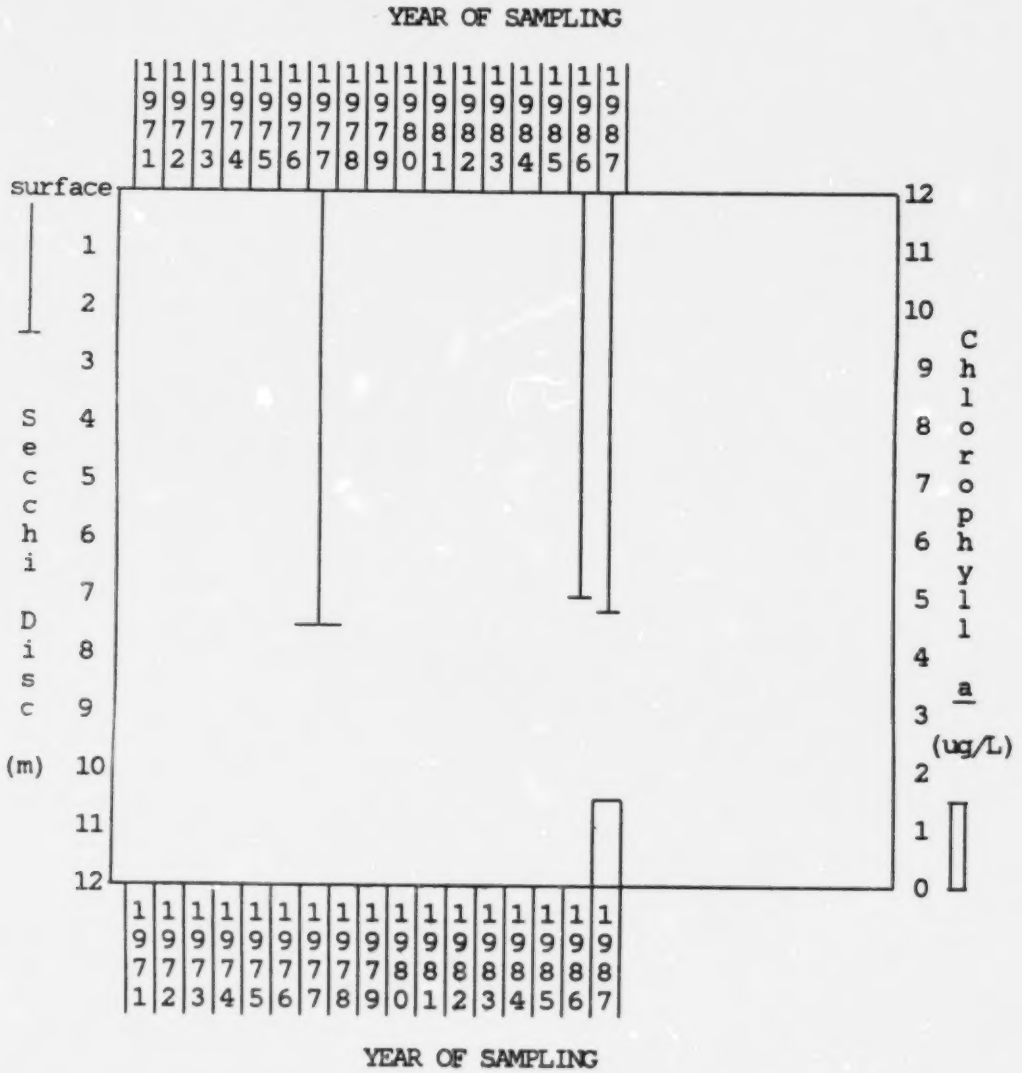


Figure 3 : Historical record of average Secchi disc and chlorophyll *a* results for Salmon Lake (North). Averages based on fewer than 4 points were considered unreliable and were not graphed.




There is insufficient information available to assess long-term trends in the water quality of Salmon Lake. Based on the data which are available, water quality is excellent at both sampling stations, water clarity being high and algal densities low.

SHADOW LAKE

SOMERVILLE TOWNSHIP

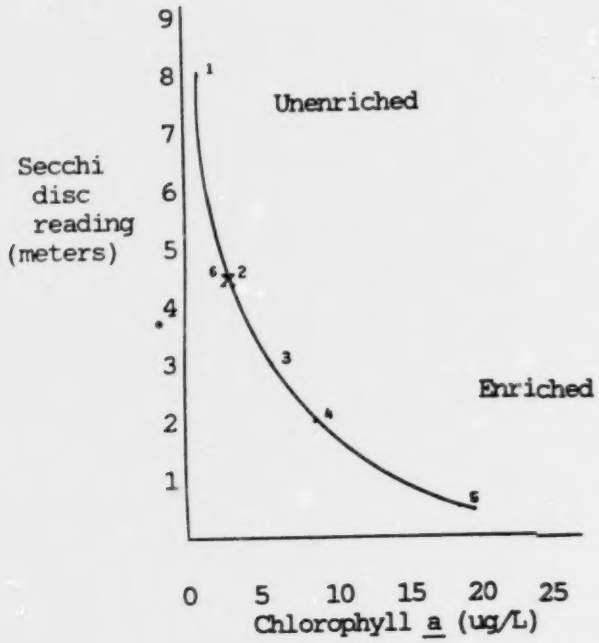
VICTORIA COUNTY

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Shadow Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.*a* |
| Jun 7 | 4.5 | 9.2 |
| Jun 14 | 4.5 | 2.0 |
| Jun 21 | 4.5 | 1.4 |
| Jun 28 | 4.5 | 1.6 |
| Jul 5 | 6.0 | - |
| Jul 26 | 5.25 | 2.9 |
| Aug 3 | 4.0 | 2.3 |
| Aug 9 | 4.5 | 2.3 |
| Aug 16 | 4.25 | 1.8 |
| Aug 23 | 4.5 | 1.5 |
| Aug 30 | 4.5 | 1.9 |
| | 4.6 | 2.5 |

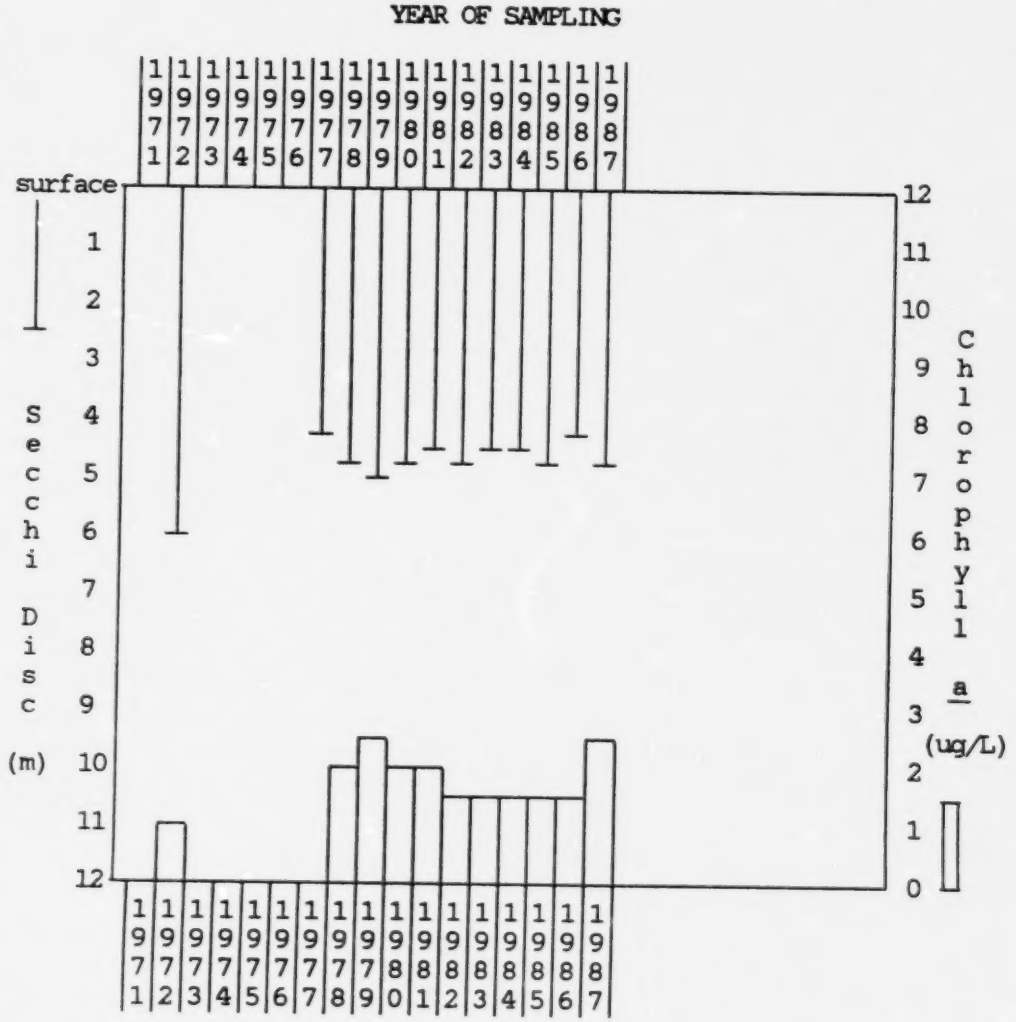
An excellent sampling program was carried out on Shadow Lake in 1987. Samples were collected on twelve occasions between June 7 and September 7. Secchi depth measurements were moderately high, ranging from 4.0 m to 6.0 m and averaging 4.6 m. Chlorophyll *a* concentrations ranged from 1.4 ug/L to 9.2 ug/L and averaged 2.5 ug/L, indicative of low densities of suspended algae. Based on these results, Shadow Lake would be considered moderately enriched to unenriched, with low algal densities and good water clarity.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Shadow Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




1 Hall's Lake - 1985
2 Koshlong Lake - 1985
3 George's Lake - 1985
4 Lake St. John - 1985
5 Lake Scugog - 1985 Williams Point
6 Shadow Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Shadow Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




We now have twelve years of data for Shadow Lake, providing an excellent historical record of water quality. Throughout the period of record, water quality has been consistently good, with low algal densities and moderately high water clarity.

**SILVER LAKE**

**MUSKOKA & MORRISON WARD**
**TOWN OF GRAVENHURST**

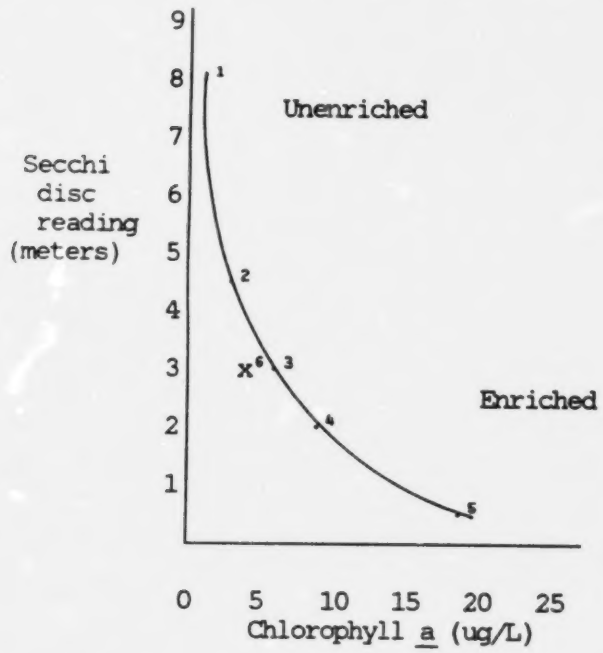
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Silver Lake in 1987.

| Date | S.D. | Chl.*a* |
|---|---|---|
| May 18 | 2.4 | 1.4 |
| Jun 1 | 2.75 | 3.9 |
| Jun 25 | 3.25 | 4.9 |
| Jul 12 | 3.6 | 4.3 |
| Aug 3 | 3.6 | 2.9 |
| Aug 9 | 4.1 | - |
| Sep 7 | 3.25 | 3.3 |
| | 3.3 | 3.4 |

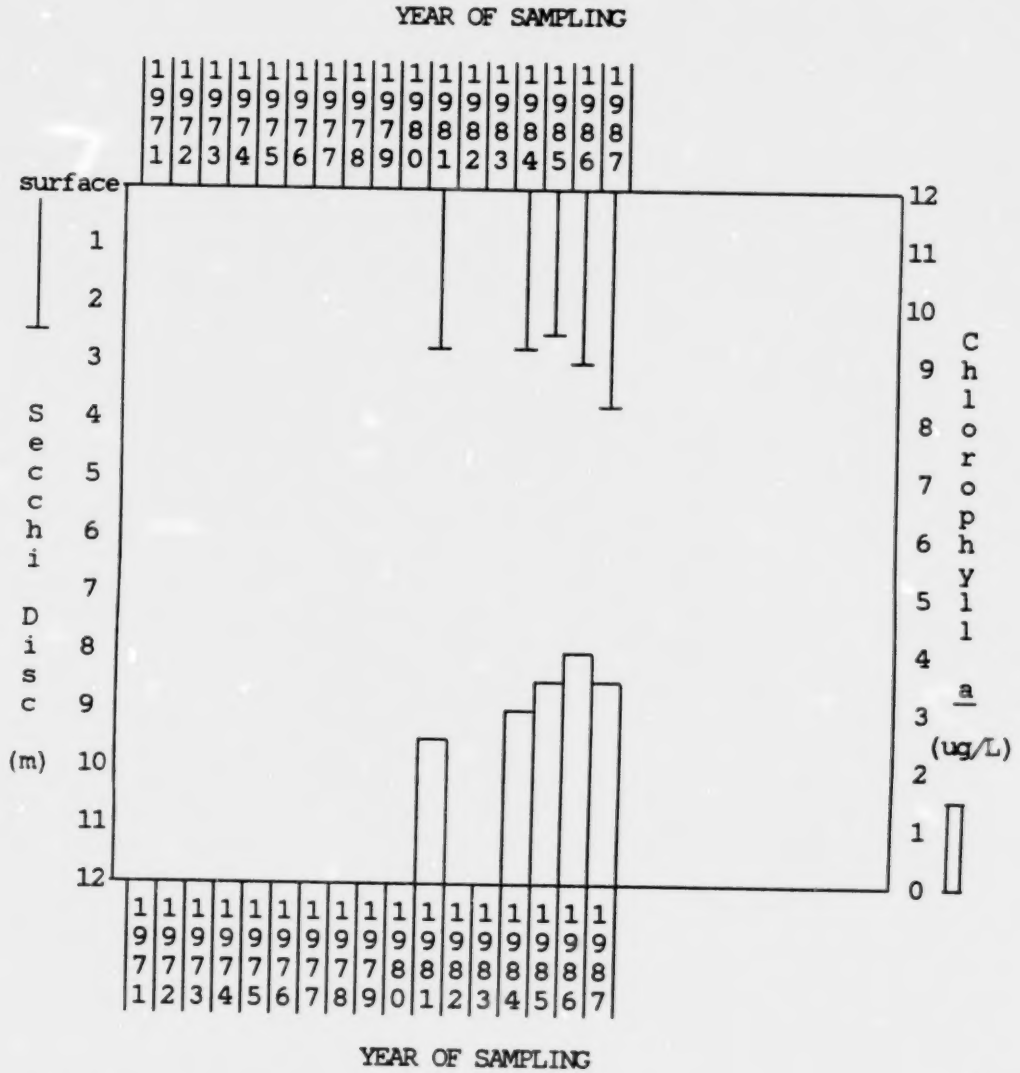
A good sampling program was undertaken in 1987. Seven samples were collected between May 18 and September 7. Secchi disc readings ranged from 2.4 m to 4.1 m and averaged 3.3 m, indicating a moderate degree of water clarity. Chlorophyll *a* concentrations ranged from 1.4 ug/L to 4.9 ug/L and averaged 3.4 ug/L, indicating moderate densities of suspended algae. Based on these results, Silver Lake would be considered moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Silver Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
[6] Silver Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll *a* results for Silver Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Based on the five years of water quality data available, Silver Lake would be considered moderately enriched. Throughout the period of record, algal densities have been moderate and water clarity has been low to moderate.

**SIX MILE LAKE**

**BAXTER WARD**
**TOWNSHIP OF GEORGIAN BAY**

**DISTRICT MUNICIPALITY OF MUSKOKA**

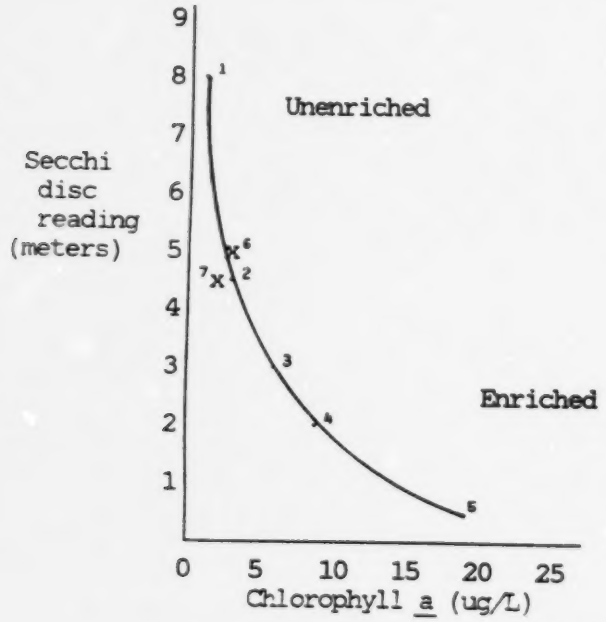
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Six Mile Lake in 1987.

| Station | North (Crooked Bay) | | South (Lost Channel) | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| May 31 | 4.2 | 2.1 | 4.5 | 1.7 |
| Jun 13 | 4.0 | 6.8 | 4.0 | 4.3 |
| Jun 28 | 4.5 | 2.4 | 4.5 | 2.6 |
| Jul 5 | 4.5 | 1.8 | 5.0 | 1.9 |
| Jul 12 | 4.5 | 2.2 | 4.5 | 2.5 |
| Sep 6 | 5.0 | 2.8 | 4.5 | 2.3 |
| Sep 20 | 6.0 | E.F. | 5.0 | E.F. |
| | 4.6 | 3.0 | 4.6 | 2.6 |

E.F. Laboratory Equipment Failure.

A good sampling program was undertaken on Six Mile Lake in 1987. Seven samples were collected from each of two stations between May 31 and September 20. Water quality was similar at the two stations, with a moderate degree of water clarity and moderate densities of suspended algae. Secchi depth measurements averaged 4.6 m at both sampling stations. Chlorophyll a concentrations averaged 3.0 ug/L and 2.6 ug/L at Crooked Bay and Lost Channel respectively. Based on these results, Six Mile Lake would be considered moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Six Mile Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
Six Mile Lake - 1987
[6] Crooked Bay
[7] Loast Channel

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Six Mile Lake (Crooked Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.

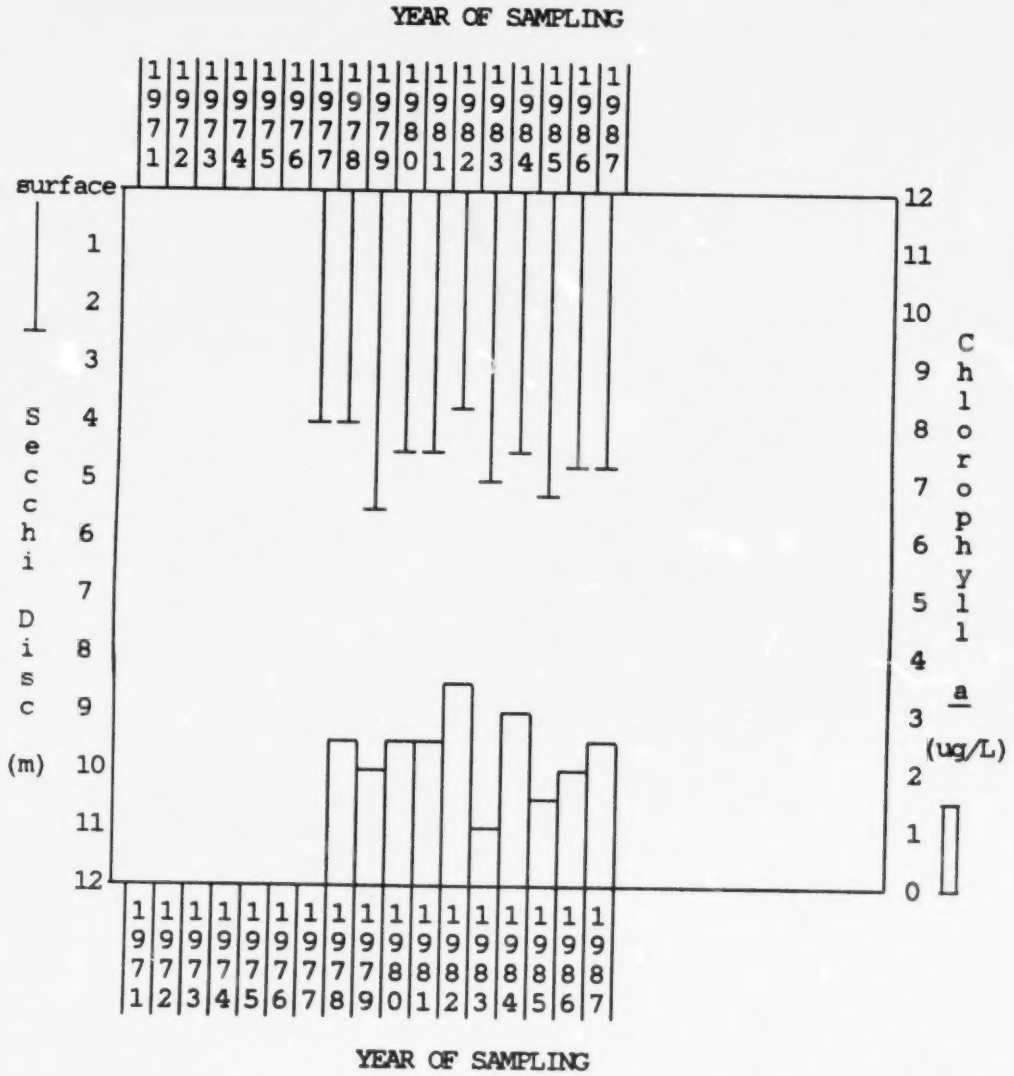
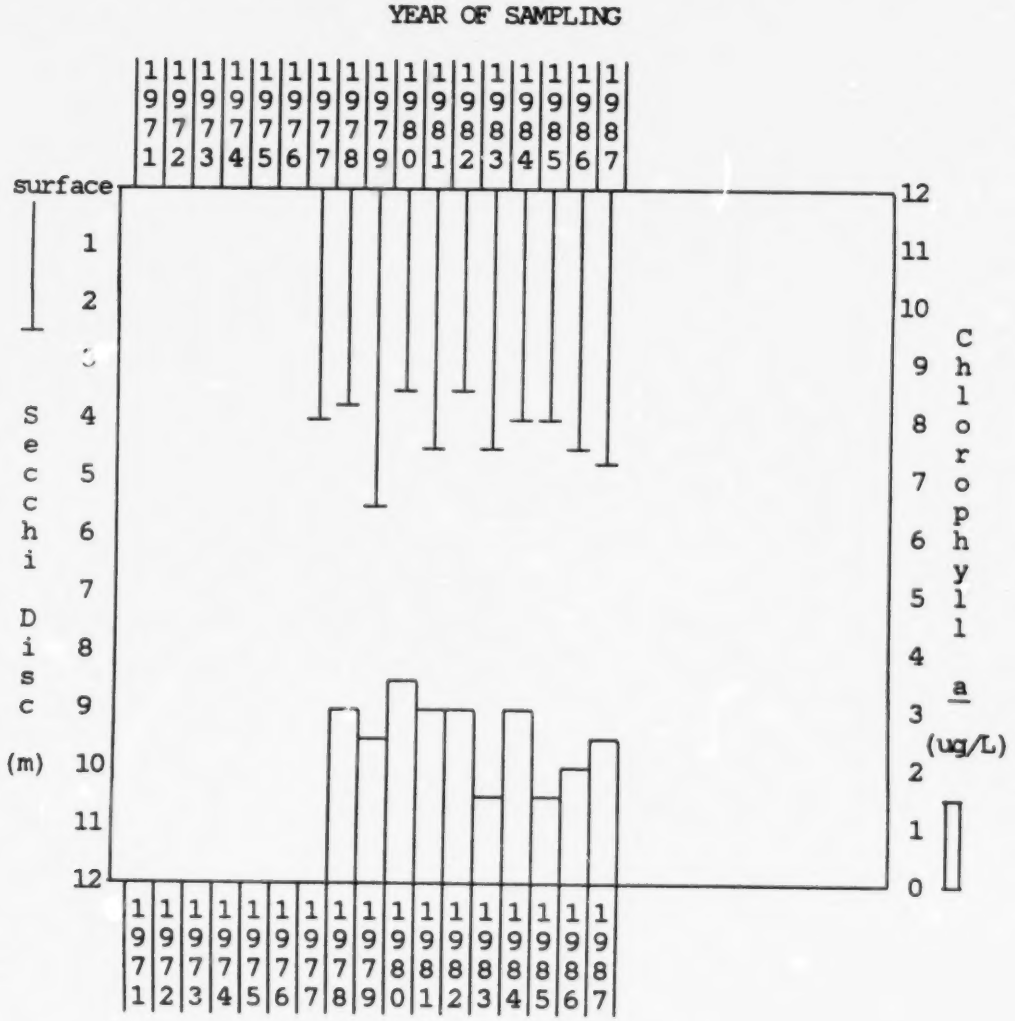


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Six Mile Lake (Lost Channel). Averages based on fewer than 4 points were considered unreliable and were not graphed.




We have an excellent historical record of water quality for Six Mile Lake, with eleven years of data from each of two stations. Although there has been some variability in average Secchi disc readings and average chlorophyll a concentrations, water quality has remained essentially unchanged since sampling began in 1977. Water clarity has been moderate and algal densities have been low to moderate.

**SKELETON LAKE**

**CARDWELL & WATT WARDS**
**TWP. OF MUSKOKA LAKES**

**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Skeleton Lake in 1987.

| Station Date | North Shore S.D. | Chl. *a* |
|---|---|---|
| Jun 7 | 11.0 | 0.6 |
| Jun 13 | 12.0 | 1.6 |
| Jun 21 | 12.0 | 0.7 |
| Jul 5 | 10.0 | 0.9 |
| Jul 19 | 9.0 | 0.8 |
| Aug 3 | 9.0 | 0.8 |
| Aug 9 | 10.0 | 1.0 |
| Aug 16 | 11.0 | 0.8 |
| Sep 7 | 13.0 | 0.8 |
| Oct 04 | 11.0 | 0.9 |
| | 10.8 | 0.9 |

Once again, an excellent sampling program was undertaken on Skeleton Lake. Samples were collected on ten occasions between June 7 and October 4. Secchi disc readings were consistently high, averaging 10.8 m, indicating a very high degree of water clarity. Chlorophyll *a* concentrations were low, averaging 0.9 ug/L, indicative of low densities of suspended algae. Based on these results, Skeleton Lake would be considered unenriched with excellent water quality.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Skeleton Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.

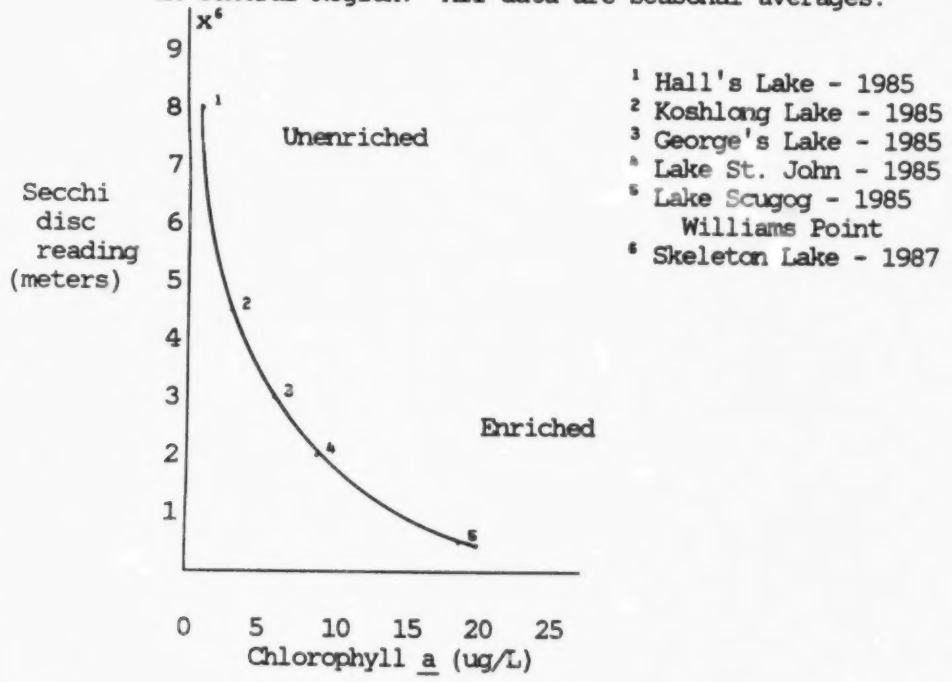
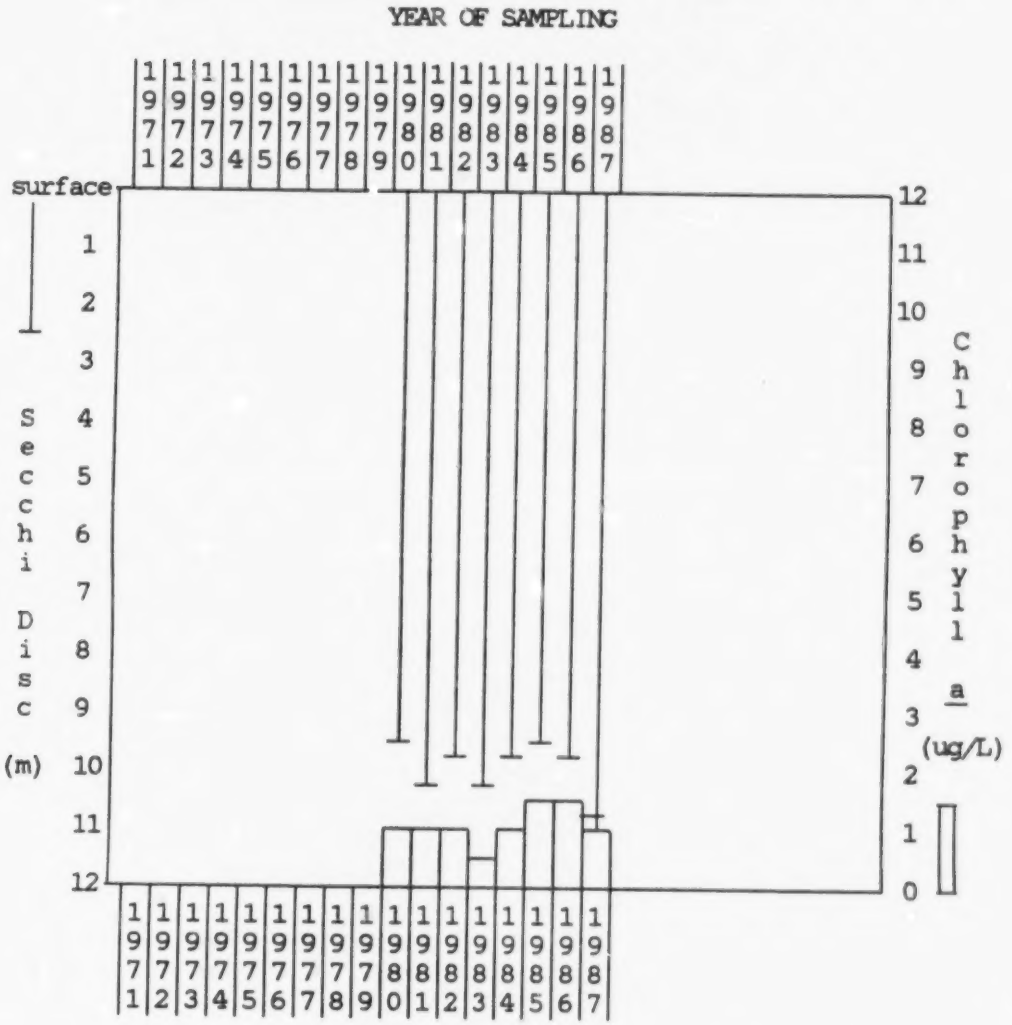


Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Skeleton Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




We now have a good historical record of water quality for Skeleton Lake, with eight years of data available. Throughout this period of record, water quality has remained excellent. Secchi disc readings have been consistently high, averaging greater than 9.0 m. Algal densities have been low, with chlorophyll a concentrations averaging less than 2 ug/L. These values are indicative of unenriched lake conditions.

SOYERS LAKE

MINDEN TOWNSHIP

COUNTY OF HALIBURTON

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Soyers Lake in 1987.

| Date | S.D. | Chl.a |
|---|---|---|
| May 18 | 4.4 | 1.6 |
| Jul 5 | 5.2 | 2.2 |
| Jul 12 | 5.4 | 1.7 |
| Jul 19 | 4.8 | 2.1 |
| Aug 3 | 4.6 | 3.1 |
| Aug 9 | 4.6 | 3.0 |
| Aug 23 | 5.3 | 2.5 |
| Sep 7 | 4.7 | 2.1 |
| | 4.9 | 2.3 |

Once again, an excellent sampling program was undertaken on Soyers Lake. Samples were collected on eight occasions between May 18 and September 7. Water clarity was moderately high with secchi depth readings ranging from 4.4 m to 5.4 m. Chlorophyll a concentrations ranged from 1.6 ug/L to 3.1 ug/L, indicating low to moderate densities of suspended algae. Based on these results, Soyers Lake would be considered moderately enriched to unenriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Soyers Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.

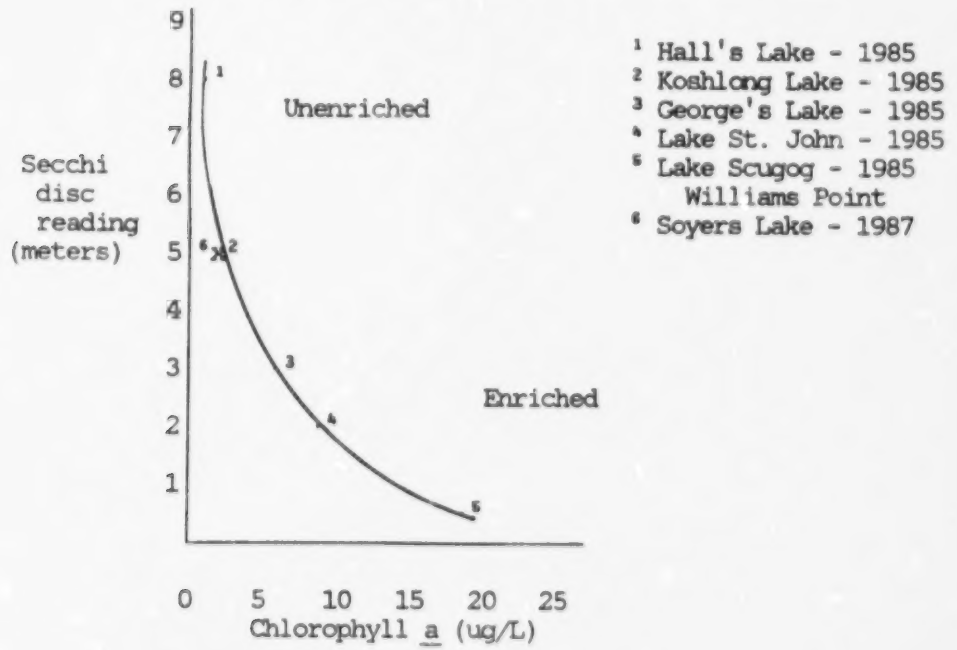
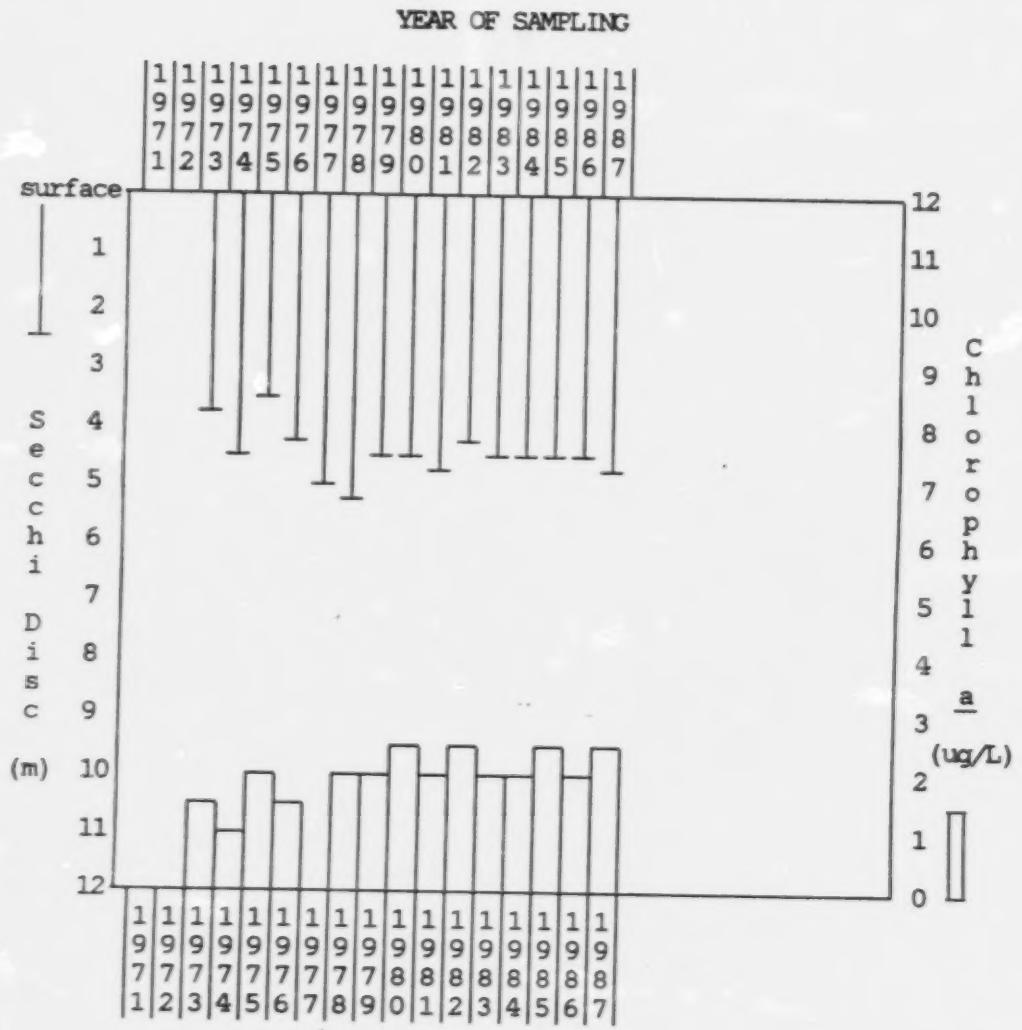


Figure 2 : Historical record of average Secchi disc and chlorophyll *a* results for Soyers Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




There is an excellent historical record of water quality available for Soyers Lake, with fifteen years of data. Water quality has changed little since sampling began in 1973. Throughout the period of record, water clarity has been moderate with average Secchi disc readings of 3 to 5 m. Average algal densities have been low to moderate throughout this time. In general, water quality has been good.

**SPAR LAKE**

**LUTTERWORTH TOWNSHIP**

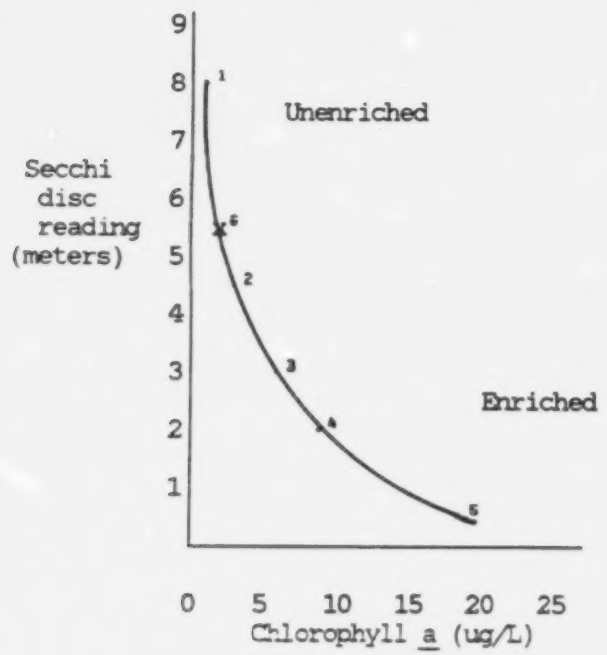
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll *a* (ug/L) data collected from Spar Lake in 1987.

| Station | Main | |
|---|---|---|
| Date | S.D. | Chl.*a* |
| May 17 | 6.1 | 1.9 |
| May 24 | 5.2 | 2.7 |
| Jun 6 | 5.0 | 1.9 |
| Jun 21 | 5.5 | 2.3 |
| Jun 28 | 5.2 | 2.7 |
| Jul 5 | 5.0 | 2.0 |
| Jul 12 | 5.5 | 1.5 |
| Jul 19 | 6.0 | 1.0 |
| Aug 6 | 6.0 | 1.5 |
| Aug 8 | 5.9 | 1.2 |
| Aug 22 | 6.3 | 1.0 |
| Sep 6 | 6.5 | 1.0 |
| | 5.7 | 1.7 |

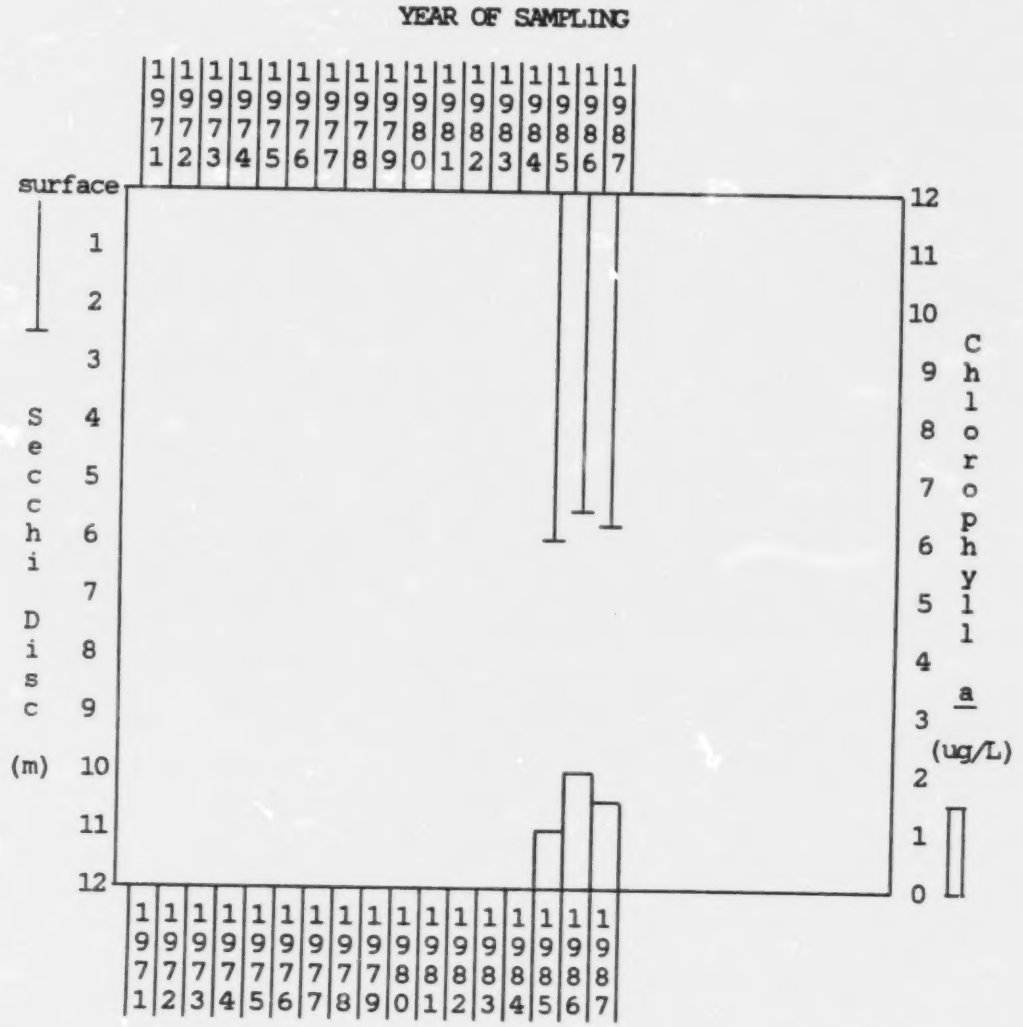
An excellent sampling program was once again undertaken on Spar Lake. Samples were collected on twelve occasions between May 17 and September 6. Secchi disc measurements were consistently high, ranging fropm 5.0 m to 6.5 m and averaging 5.7 m. Chlorophyll *a* concentrations were low, ranging from 1.0 ug/L to 2.7 ug/L and averaging 1.7 ug/L. Based on these results, Spar Lake would be considered unenriched with high water clarity, low algal densities and excellent water quality.

FIGURE 1: The relationship between Secchi disc and chlorophyll *a* for Spar Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Spar Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Spar Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




Based on the three years of data now available, Spar Lake would be considered unenriched with excellent water quality. Water clarity has been consistently high and algal densities low. We hope that sampling continues in order to establish a long-term record of water quality for Spar Lake.

SPARROW LAKE

MORRISON WARD
TOWN OF GRAVENHURST

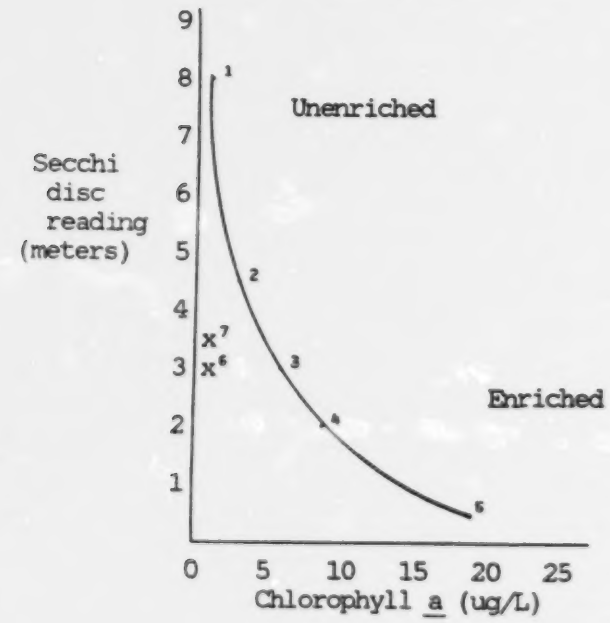
DISTRICT MUNICIPALITY OF
MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Sparrow Lake in 1987.

| Station | North End | | Deep Bay | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jul 4 | 3.5 | 2.1 | 4.5 | 2.0 |
| Jul 25 | - | - | 5.0 | 0.4 |
| Aug 8 | 3.5 | 1.7 | - | - |
| Aug 17 | 2.5 | 0.4 | 2.5 | 1.0 |
| Aug 31 | 3.5 | 0.2 | 3.0 | 0.6 |
| | 3.2 | 1.1 | 3.8 | 1.0 |

In 1987, four samples were collected from each of two stations on Sparrow Lake. Water clarity was moderately low, averaging 3.2 m and 3.8 m at the North and Deep Bay stations respectively. Chlorophyll a concentrations were low at both stations, however, the validity of these results is questionable because samples were often not recieved at the laboratory until a considerable time following their collection. Sparrow Lake appears to be moderately enriched. In future, we recommend that a minimum of six samples from each station be collected throughout the summer and submitted promptly to the laboratory following collection.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Sparrow Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Sparrow Lake - 1987
[6] North End
[7] Deep Bay

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Sparrow Lake (North). Averages based on fewer than 4 points were considered unreliable and were not graphed.

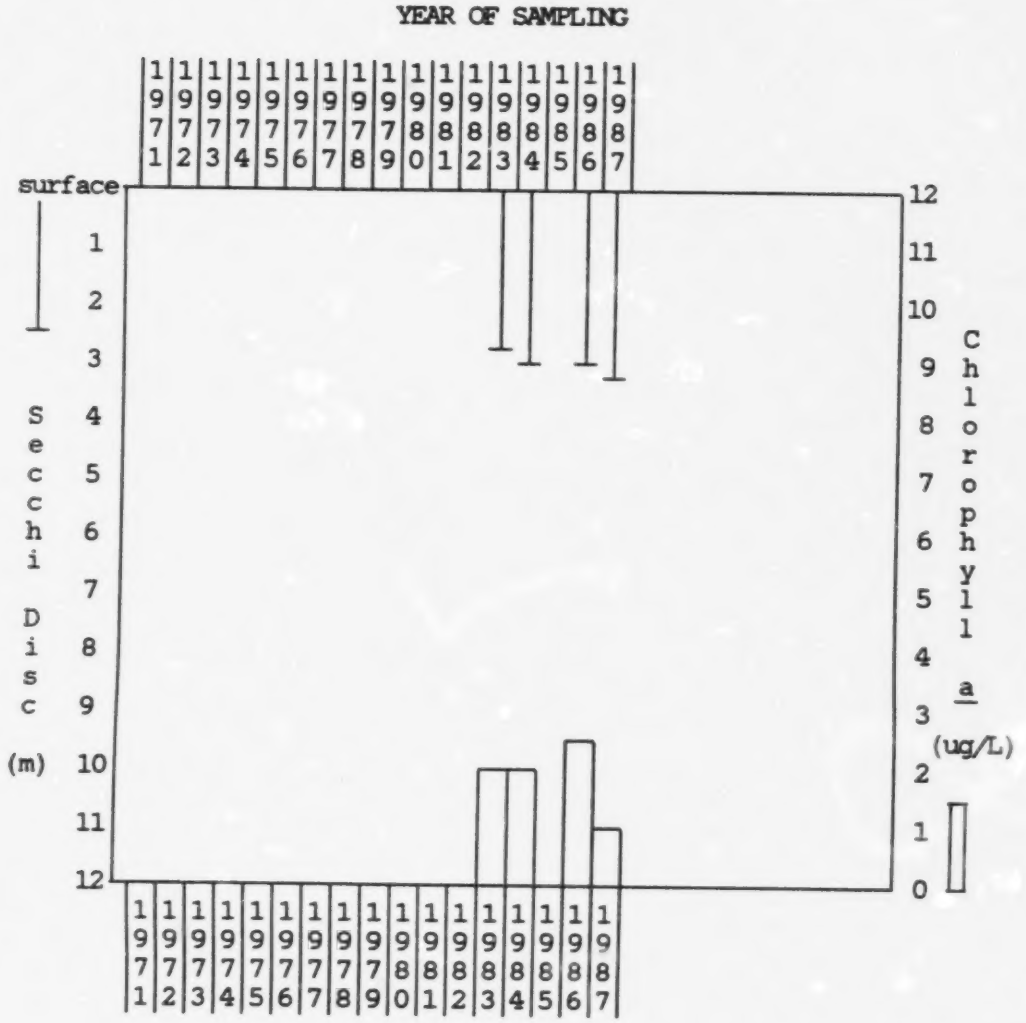
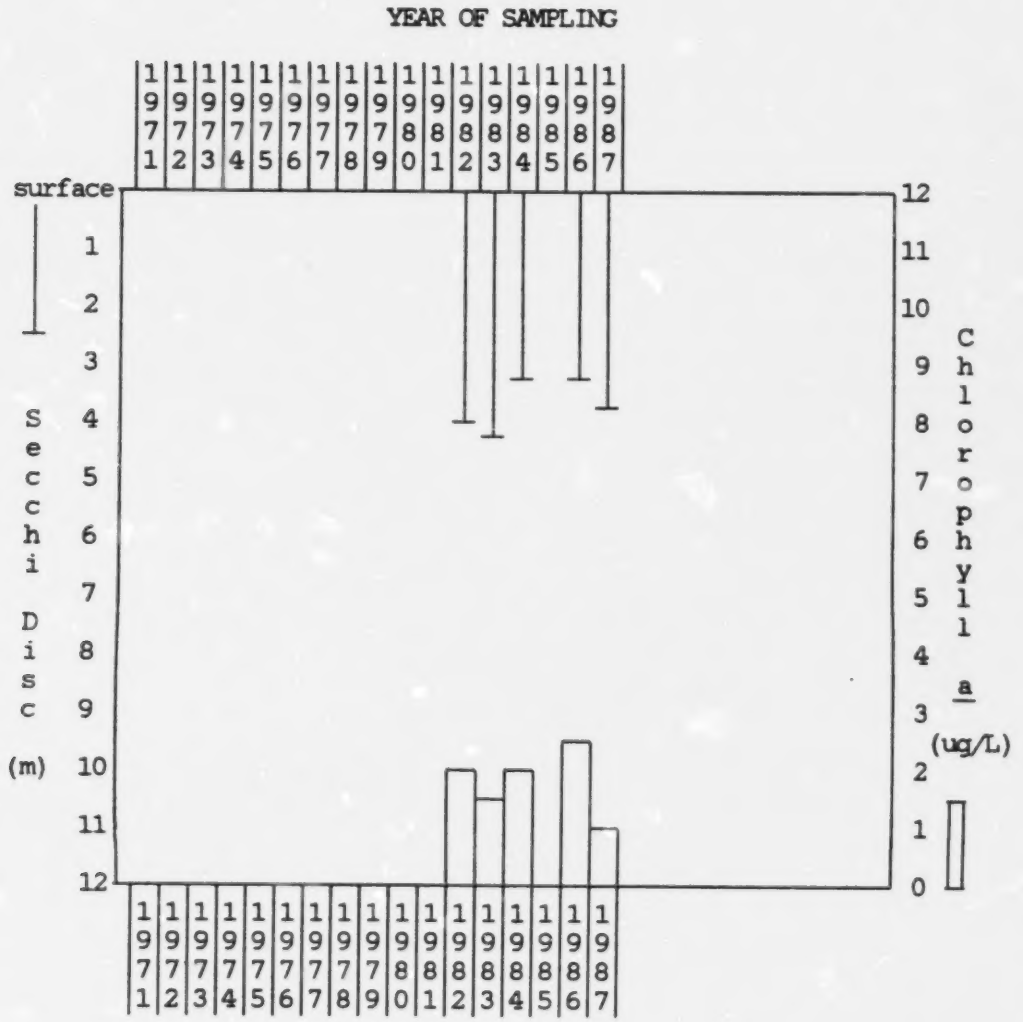


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Sparrow Lake (Deep Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




There are now four years of data from the North End of Sparrow Lake and five years of data from Deep Bay. These results indicate that water clarity has been moderate and algal densities low to moderate throughout the period of record.

STURGEON LAKE

FENELON TOWNSHIP

VICTORIA COUNTY

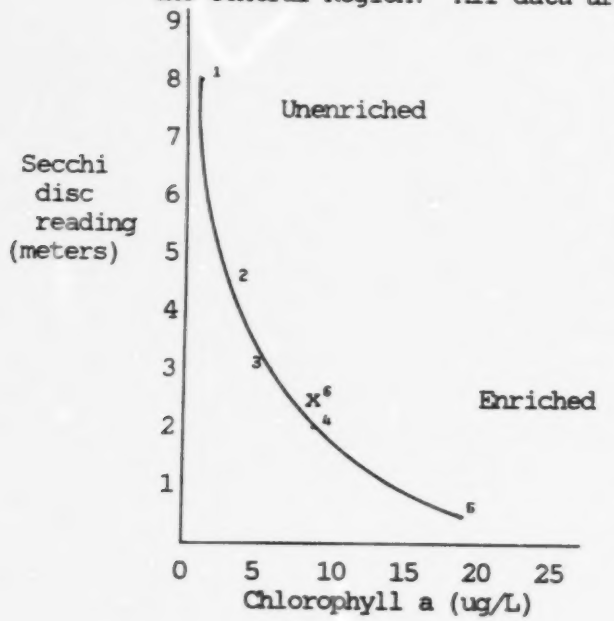
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Sturgeon Lake in 1987

| Station | Off Sturgeon Pt. (Foot 2nd St.) | |
|---|---|---|
| Date | S.D. | Chl.a |
| May 24 | 4.5 | N.R. |
| May 30 | 4.6 | 2.7 |
| Jun 7 | 2.5 | 3.7 |
| Jun 14 | 3.0 | 7.2 |
| Jun 21 | 3.0 | 3.8 |
| Jun 28 | 2.5 | 6.1 |
| Jul 5 | 3.5 | 7.1 |
| Jul 12 | 3.5 | 3.6 |
| Jul 19 | 3.0 | 5.2 |
| Jul 26 | 3.0 | 5.7 |
| Aug 3 | 2.0 | 20.1 |
| Aug 6 | 1.9 | 13.4 |
| Aug 31 | 1.2 | 24.7 |
| Sep 7 | 1.6 | 11.5 |
| Sep 13 | 2.3 | U.R |
| Sep 20 | 2.0 | 6.1 |
| Sep 27 | 1.6 | 17.1 |
| Oct 4 | 1.6 | 16.0 |
| Oct 12 | 2.5 | 7.4 |
| | 2.6 | 9.5 |

N.R.: sample not recieved at laboratory.
U.R.: unreliable result

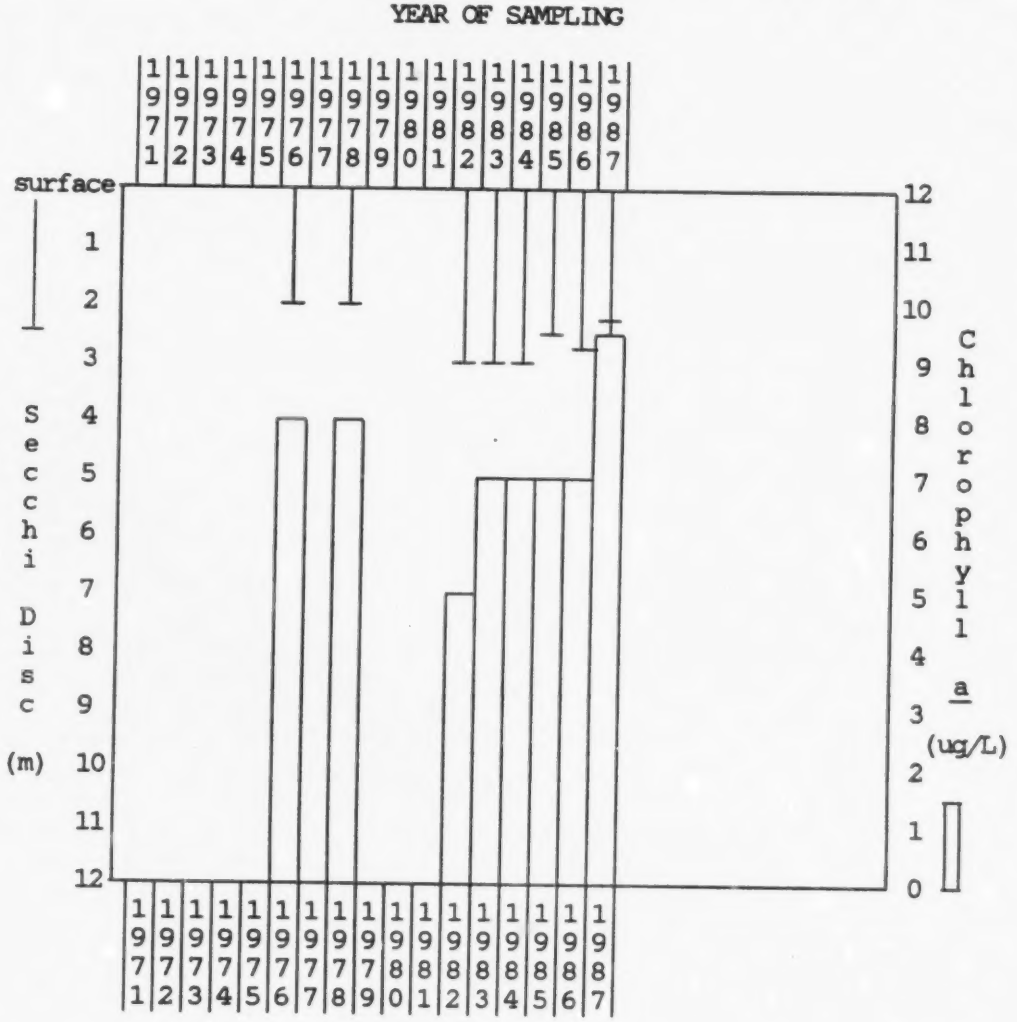
Another excellent sampling program was conducted on Sturgeon Lake in 1987. Samples were collected on nineteen occasions from May 24 to October 12. Secchi disc measurements ranged from 1.2 m to 4.6 m and averaged 2.6 m. Chlorophyll a concentrations ranged from 2.7 ug/L to 24.7 ug/L and averaged 9.5 ug/L. Based on these results, Sturgeon Lake would be considered enriched with a generally low degree of water clarity and high densities of suspended algae. In 1987, dense blooms of algae persisted throughout August and September. We hope you continue your fine efforts again next year.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Sturgeon Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Sturgeon Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Sturgeon Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




There are now eight years of data available for Sturgeon Lake. Water quality has remained virtually unchanged since sampling began in 1976. Water clarity has been consistently low and algal densities consistently high throughout this period of record. These results are indicative of the enriched nature of Sturgeon Lake.

MORRISON WARD
TOWN OF GRAVENHURST

DISTRICT MUNICIPALITY OF MUSKOKA

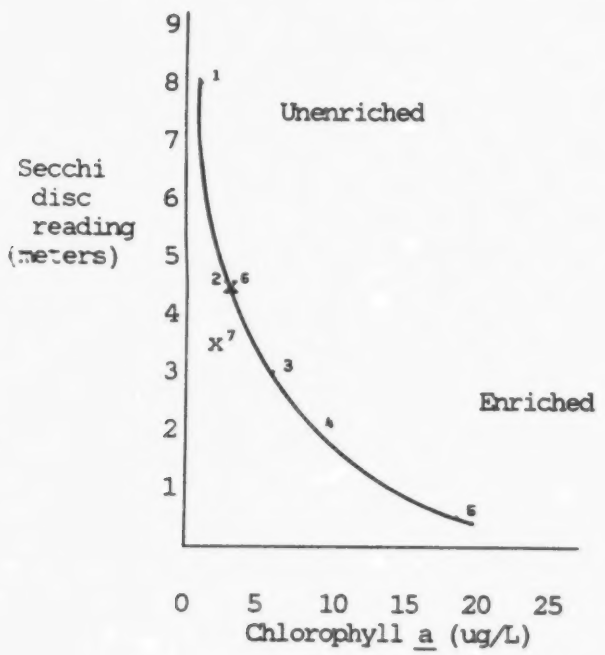
Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Sunny Lake in 1987

| Station | Main | | North Bay | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 21 | 4.75 | 2.8 | 3.0 (B) | 1.9 |
| Jun 28 | 4.5 | 2.1 | 3.5 (B) | 1.2 |
| Jul 12 | 5.25 | 2.1 | 3.5 (B) | 0.9 |
| Aug 3 | 5.25 | 3.1 | 3.5 (B) | 2.0 |
| Aug 23 | 3.75 | 5.6 | 2.5 (B) | 2.3 |
| Aug 30 | 3.75 | 3.2 | 3.0 (B) | 1.4 |
| | 4.5 | 3.2 | 3.2 | 1.6 |

B - bottom

See attached page for text.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Sunny Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Sunny Lake - 1987
[6] Main
[7] North Bay

SUNNY LAKE (page 2)

MORRISON WARD
TOWN OF GRAVENHURST

DISTRICT MUNICIPALITY OF
MUSKOKA

In 1987, six samples were collected from each of two stations on Sunny Lake. There was a moderate degree of water clarity, with secchi disc measurements averaging 4.5 m and 3.2 m respectively, for the Main and North Bay stations. Note that the recorded secchi depths at North Bay are equal to the total water depth at this station. Chlorophyll a concentrations averaged 3.2 ug/L at the Main station and 1.6 ug/L at the North Bay station. This indicates that densities of suspended algae are moderate at the Main station and low at the North Bay station. Based on these results, Sunny Lake would be considered moderately enriched.

Figure 2 : Historical record of average Secchi disc and chlorophyll *a* results for Sunny Lake (Main). Averages based on fewer than 4 points were considered unreliable and were not graphed.

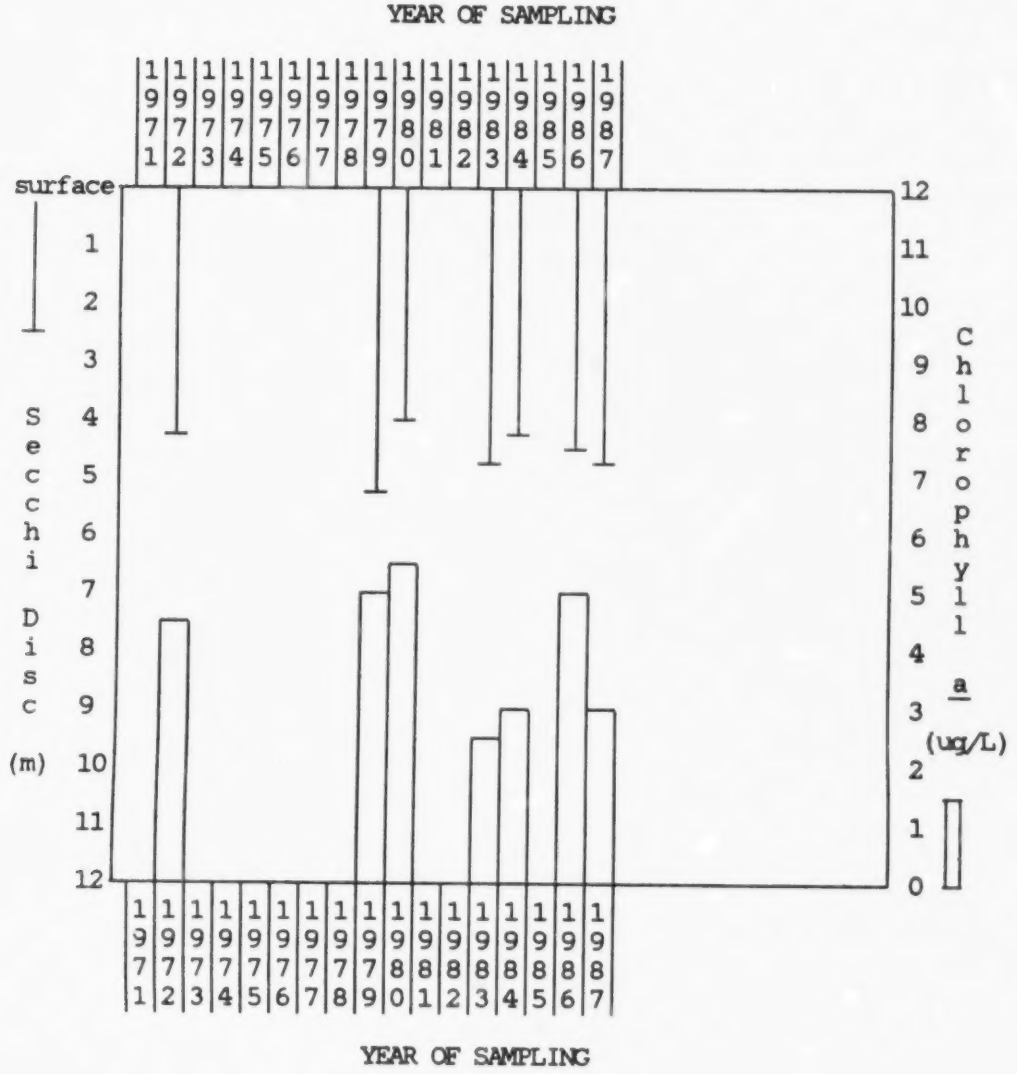
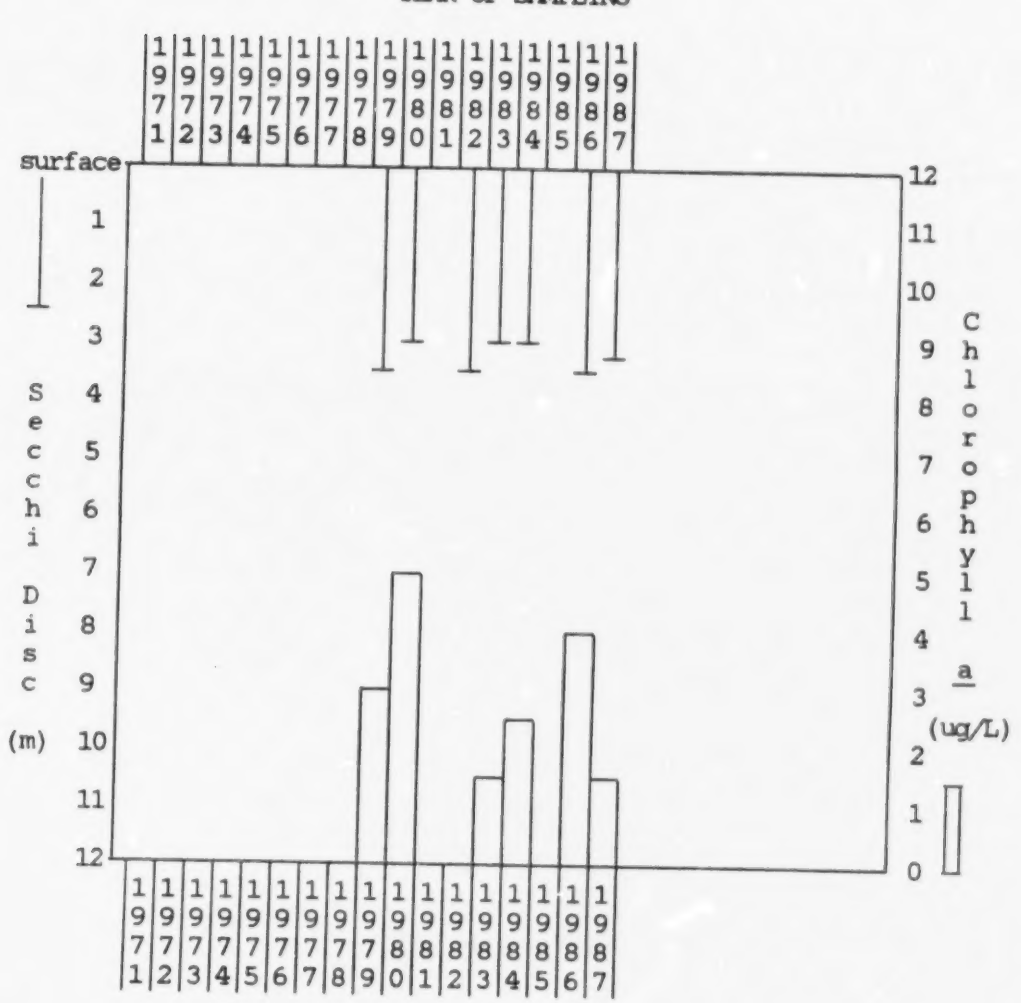


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Sunny Lake (North Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




We now have at least six years of water quality data from each of two sampling stations on Sunny Lake. Throughout this period of record, water clarity has been moderate and algal densities, although variable, have generally been moderate to high. Based on these results, Sunny Lake would be considered moderately enriched.

TASSO LAKE

FINLAYSON WARD
TOWNSHIP OF LAKE OF BAYS

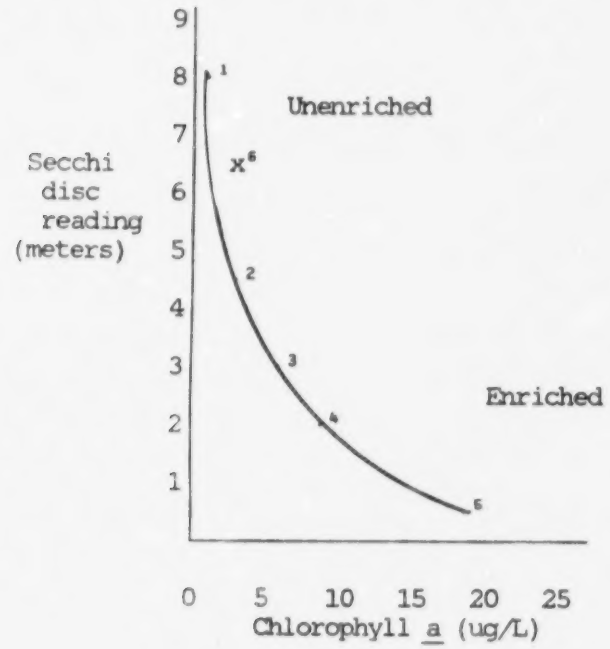
DISTRICT MUNICIPALITY OF
MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Tasso Lake in 1987

| Station | 2nd Bay (south of dam) | |
|---|---|---|
| Date | S.D. | Chl.a |
| May 18 | 6.5 | 1.1 |
| Jun 28 | 6.5 | 1.7 |
| Jul 5 | 6.5 | 2.2 |
| Jul 12 | 6.5 | 2.8 |
| Jul 19 | 7.0 | 3.2 |
| Aug 3 | 6.0 | 3.2 |
| Sep 7 | 5.0 | 3.2 |
| | 6.23 | 2.5 |

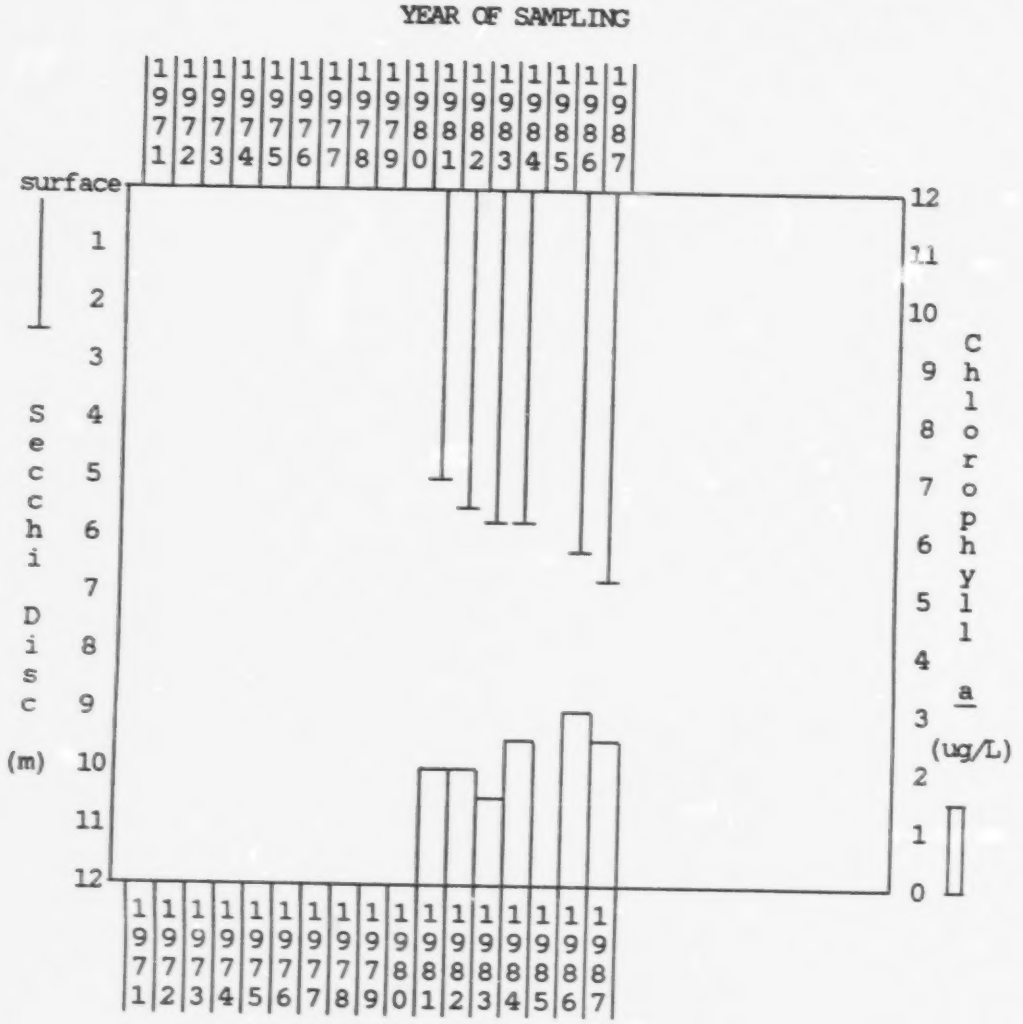
Tasso Lake was sampled on seven occasions in 1987 providing excellent seasonal information on water quality. The water of Tasso Lake was clear with Secchi disc readings ranging from 5 to 7 m. Algal densities were low to moderate based on chlorophyll a concentrations ranging from 1.1 to 3.2 ug/L. Based on these results, Tasso Lake would be considered to be relatively unenriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Tasso Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




1 Hall's Lake - 1985
2 Koshlong Lake - 1985
3 George's Lake - 1985
4 Lake St. John - 1985
5 Lake Scugog - 1985
Williams Point
6 Tasso Lake - 1987

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Tasso Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




There are now six years of water quality data available for Tasso Lake. Throughout this period of record, water clarity has been consistently high and algal densities have been low to moderate. We hope sampling continues in order to add to the good historical record for Tasso Lake.

THREE MILE LAKE

WATT WARD
TOWNSHIP OF MUSKOKA LAKES

DISTRICT MUNICIPALITY OF MUSKOKA

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Three Mile Lake in 1987.

| Station | Green Bay West | | Hammel's Bay | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jul 5 | 2.0 | 4.1 | 4.0 | 1.4 |
| Jul 12 | 2.5 | 12.2 | 5.0 | 3.5 |
| Jul 26 | 2.75 | 3.4 | 5.0 | 2.0 |
| Aug 16 | 3.0 | 3.4 | 4.5 | 1.6 |
| Aug 30 | 2.5 | 8.2 | 3.0 | 6.8 |
| | 2.6 | 6.3 | 4.3 | 3.1 |

A good sampling program was conducted on Three Mile Lake in 1987 with both Green Bay West and Hammel's Bay being sampled on six occasions. At the Green Bay West station water clarity was low (average Secchi depth of 2.6 m) and suspended algae densities were high (average chlorophyll a concentration of 6.3 ug/L) indicating nutrient enriched conditions for this part of the lake. Hammel's Bay had greater water clarity (average Secchi depth reading of 4.3 m) and lower densities of suspended algae (average chlorophyll a concentration of 3.1 ug/L) and would be considered to be moderately enriched.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Three Mile Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.

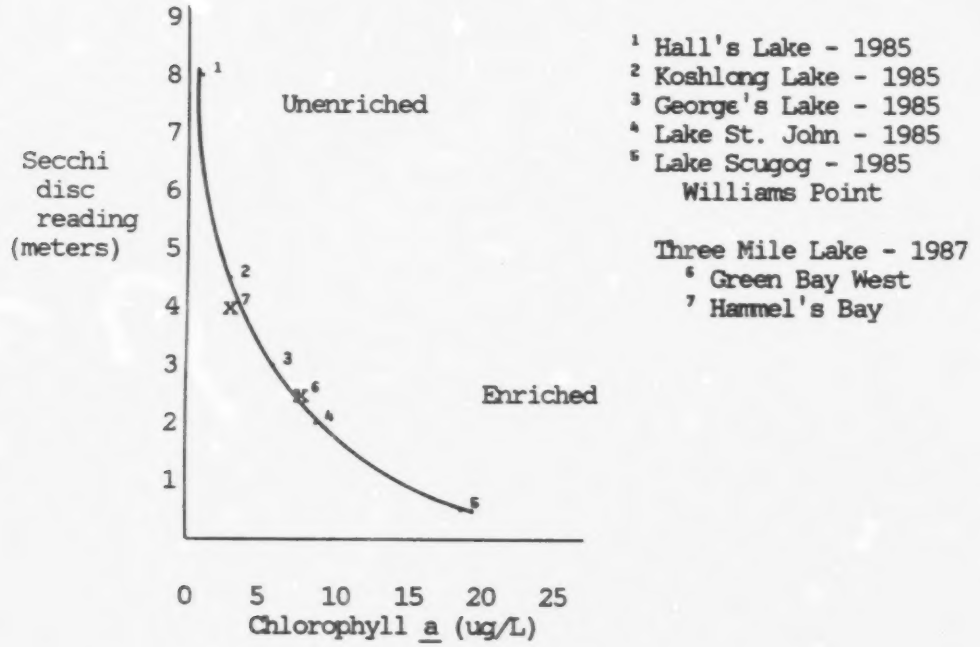
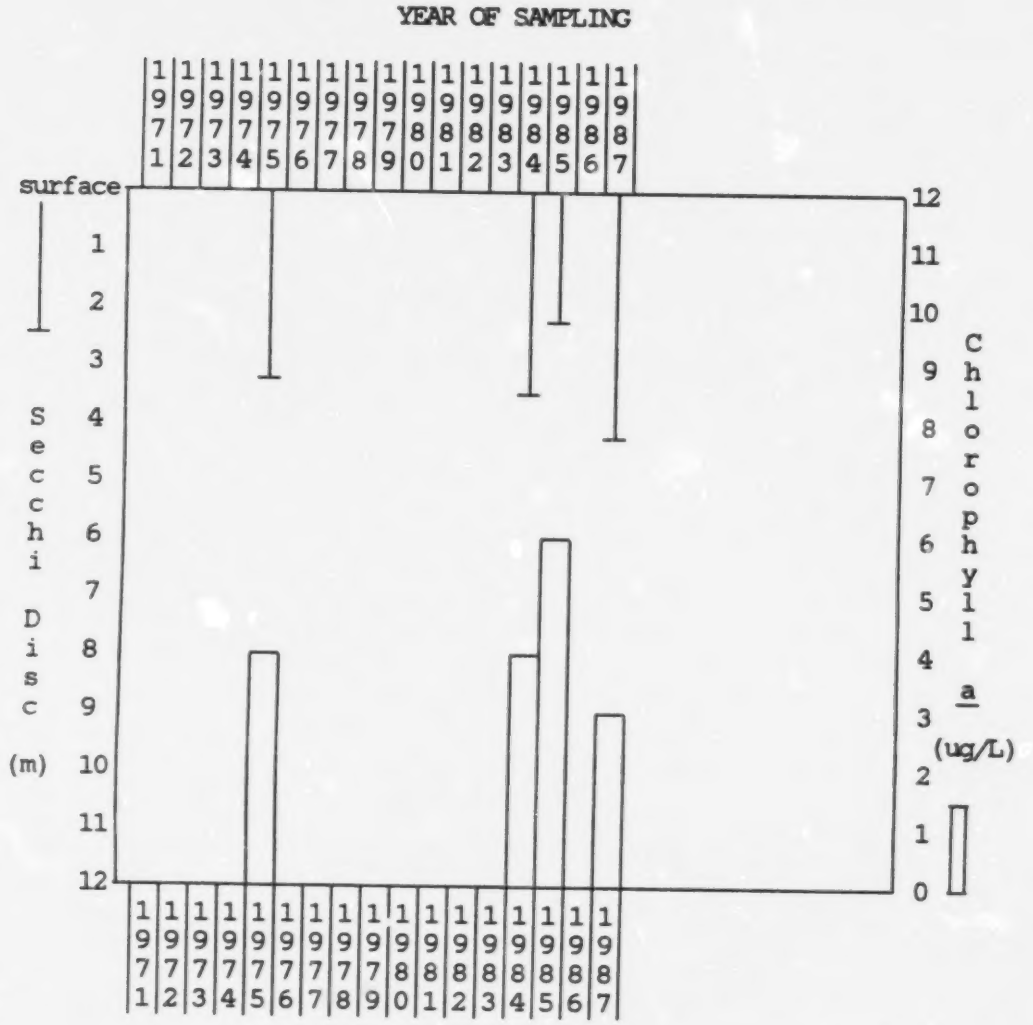
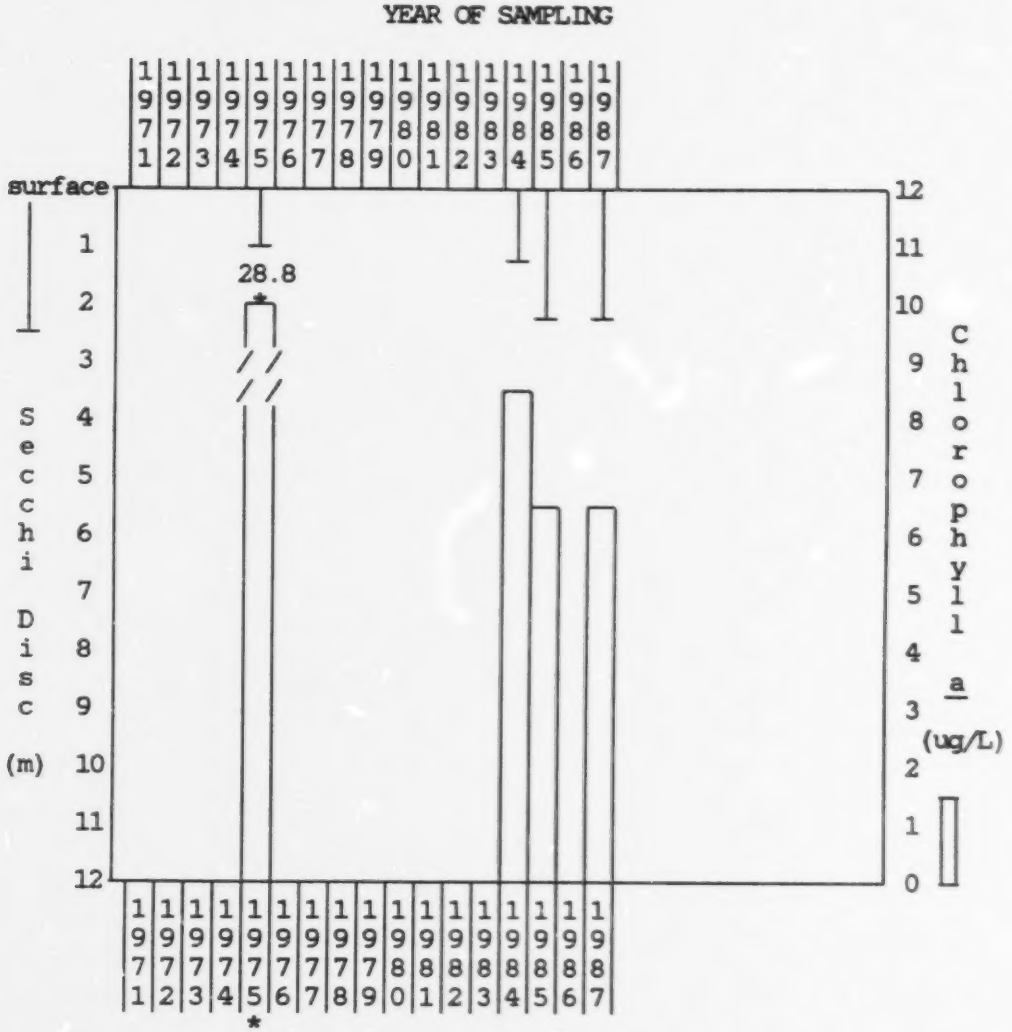


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Three Mile Lake (Hammel's Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




There are now four years of reliable water quality data available for Three Mile Lake. Based on these data, Green Bay would be considered enriched and subject to algal blooms. Water clarity here has been low. Hammel's Bay has had somewhat better water quality, although algal densities have also been fairly high.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Three Mile Lake (Green Bay). Averages based on fewer than 4 points were considered unreliable and were not graphed.




* 1975 chlorophyll a concentrations higher than scale

**TWELVE MILE LAKE**

**MINDEN TOWNSHIP**

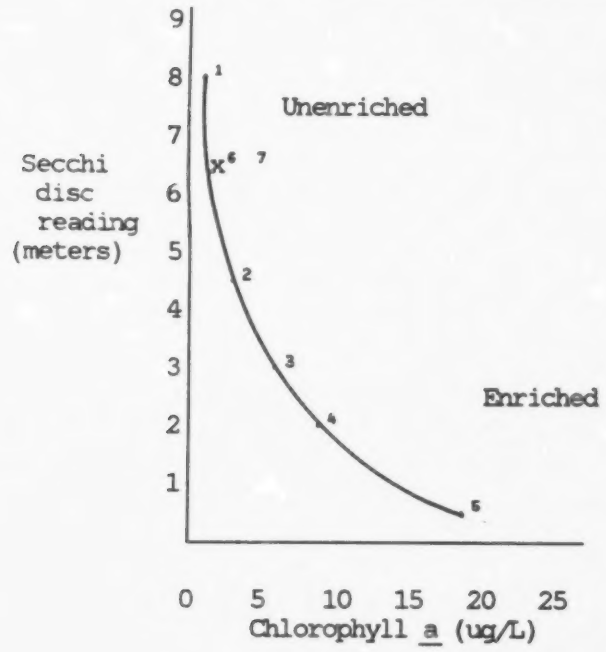
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Twelve Mile Lake in 1987.

| Station | Main | | East | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 7 | 7.0 | 1.3 | 7.0 | 2.1 |
| Jun 21 | 6.0 | 1.8 | 6.5 | 2.2 |
| Jul 4 | 6.0 | 2.4 | 7.0 | 1.6 |
| Jul 19 | 6.5 | 1.3 | 5.5 | 1.3 |
| Aug 8 | 6.0 | 3.6 | 5.5 | 2.6 |
| Aug 17 | 5.5 | 2.7 | 5.5 | 2.1 |
| | 6.2 | 2.2 | 6.2 | 2.0 |

On the basis of a good sampling program in 1987 Twelve Mile Lake was characterized by clear water (average Secchi depth of 6.2 m at both sampling locations) with low densities of suspended algae (average chlorophyll a concentrations of 2.0 to 2.2 ug/L). The lake would be considered to be unenriched with excellent water quality.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Twelve Mile Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Twelve Mile Lake - 1987
[6] Main Station
[7] East Station

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Twelve Mile Lake (Main). Averages based on fewer than 4 points were considered unreliable and were not graphed.

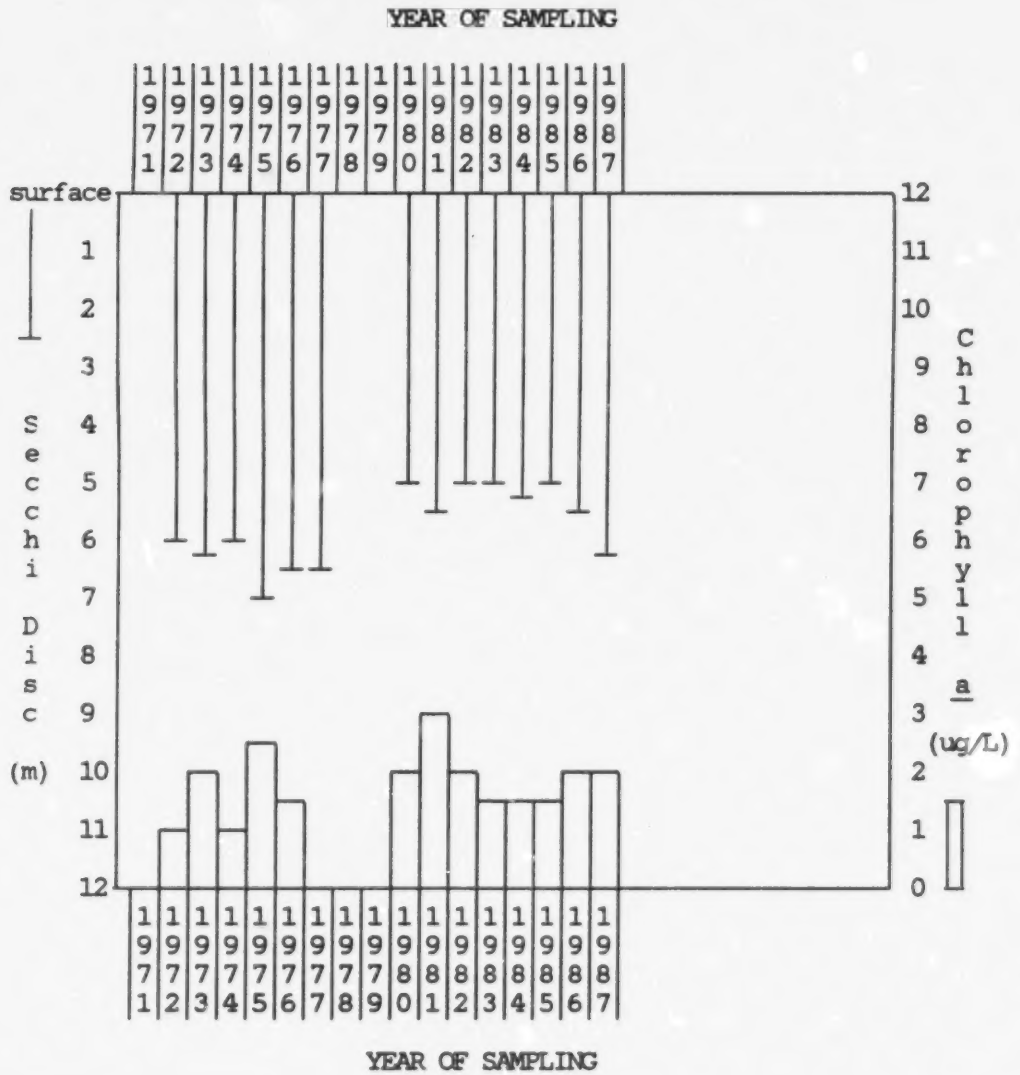
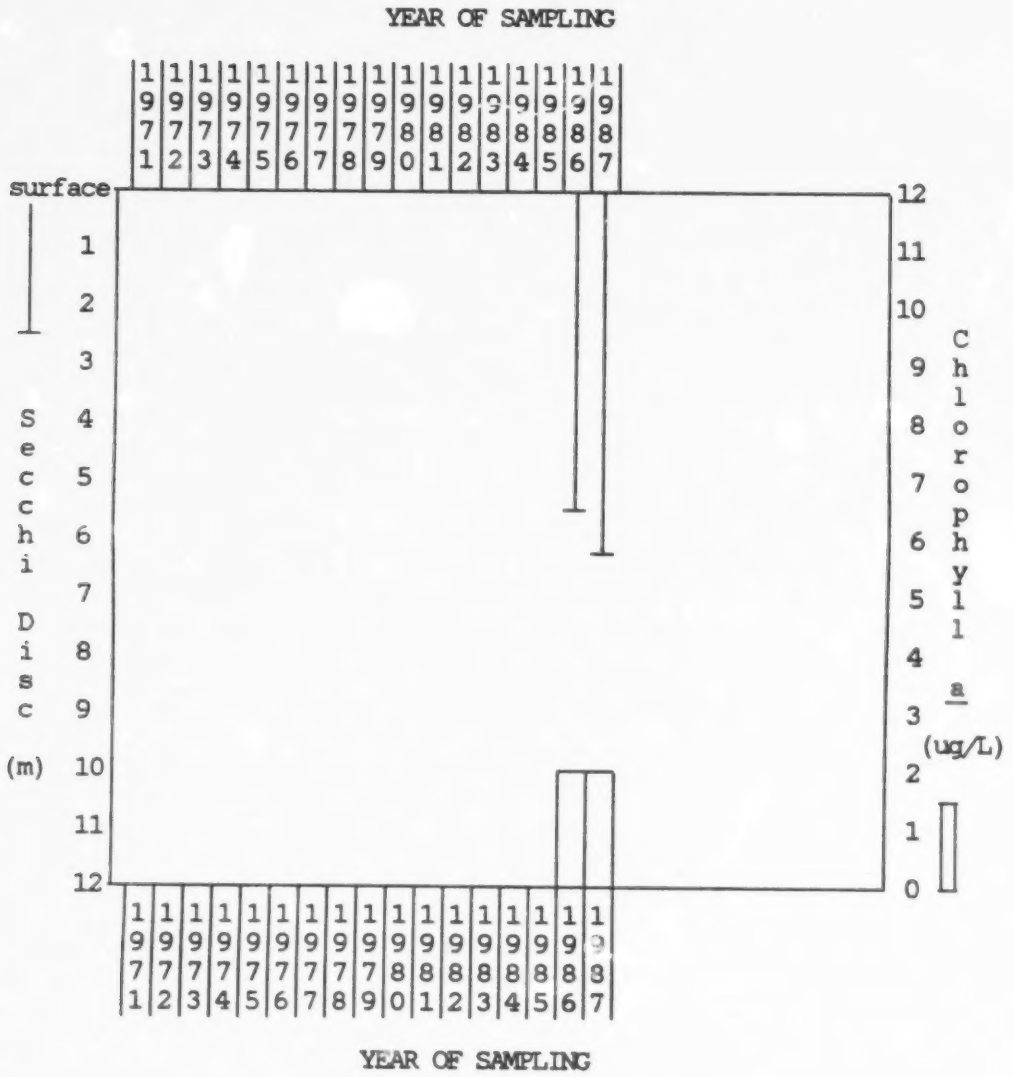


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Twelve Mile Lake (East). Averages based on fewer than 4 points were considered unreliable and were not graphed.




There is an excellent historical record available for the water quality of Twelve Mile Lake, with fourteen years of data for the Main station. Throughout this period of record, water quality has been very good, characterized by high water clarity and generally low densities of suspended algae. Water quality appears to be similar at the newer East station, however, only two years of reliable data are available here.

**WASEOSA LAKE**

**CHAFFEY WARD**
**TOWN OF HUNTSVILLE**

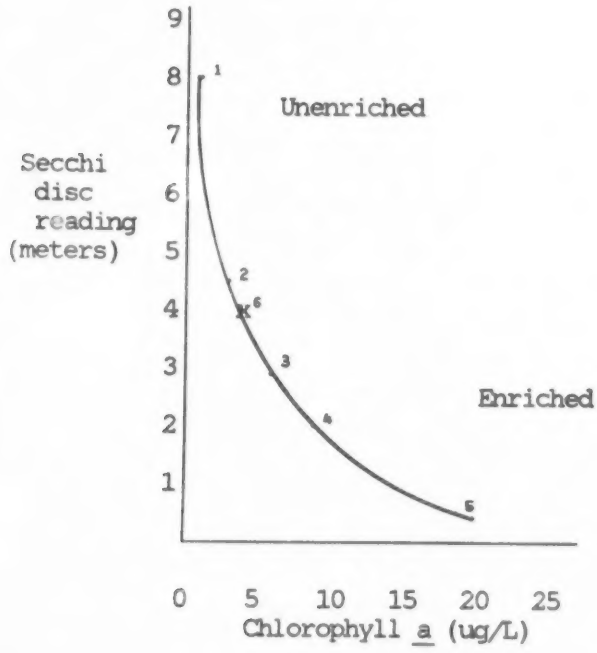
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Waseosa Lake in 1987.

| Station | North | |
|---|---|---|
| Date | S.D. | Chl.a |
| Jun 21 | 3.75 | 5.3 |
| Jul 5 | 3.1 | 2.4 |
| Jul 26 | 3.75 | 3.0 |
| Aug 9 | 3.75 | 3.8 |
| Aug 16 | 4.0 | 4.3 |
| Aug 30 | 4.0 | 3.4 |
| | 3.7 | 3.7 |

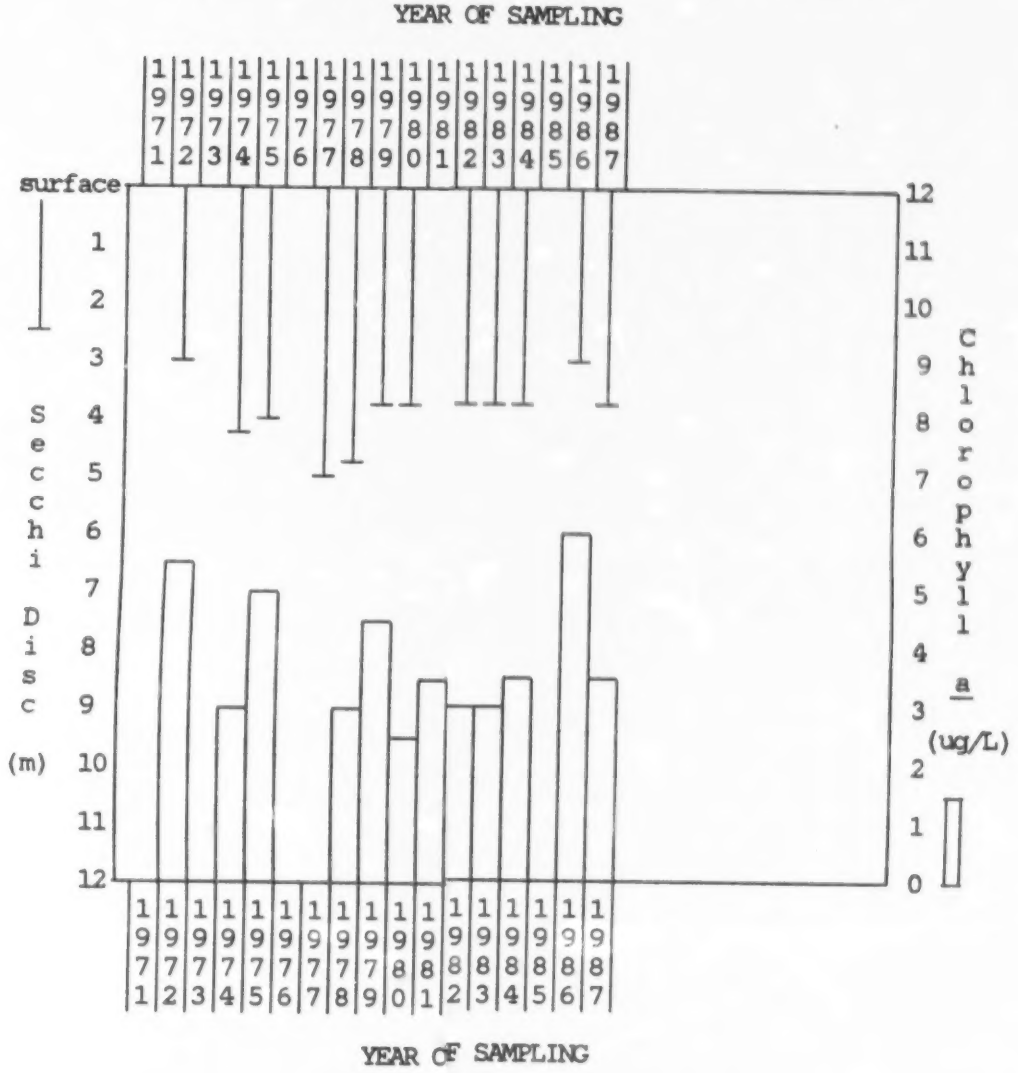
Waseosa Lake experienced moderate nutrient enrichment conditions in 1987 based on a good program in which the lake was sampled on six occasions. The water clarity was moderate, with the Secchi depth ranging between 3.1 and 4.0 m. Suspended algal concentrations were also moderate and ranged between 2.4 and 5.3 ug/L.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Waseosa Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985 Williams Point
[6] Waseosa Lake - 1987

Figure 2 : Historical record of averge Secchi disc and chlorophyll a results for Waseosa Lake. Averages based on fewer than 4 points were considered unreliable and were not graphed.




We now have twelve years of reliable water quality data for Waseosa Lake. Throughout this period of record, water clarity has been moderate. Densities of suspended algae have been moderate to high. Based on these results, Waseosa Lake would be considered moderately enriched.

**WENONA (LITTLE DUDMON) LAKE**

**DUDLEY TOWNSHIP**

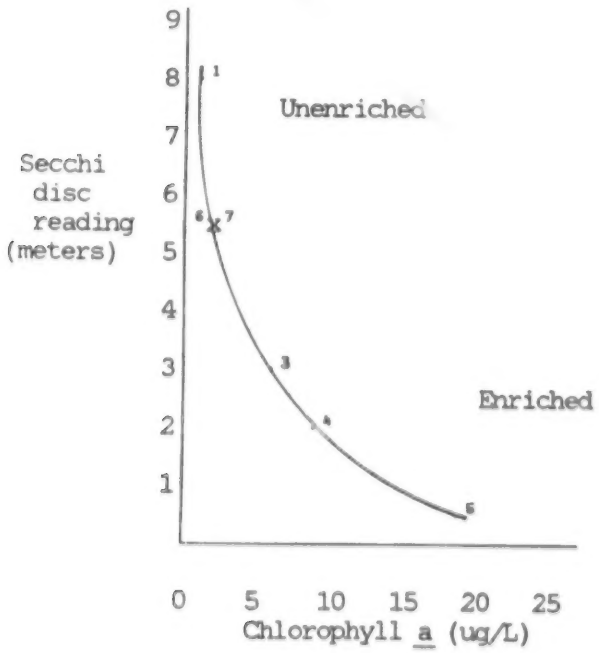
**COUNTY OF HALIBURTON**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Wenona Lake in 1987.

| Station | North | | South | |
|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a |
| Jun 14 | 6.0 | 3.0 | 6.5 | 3.4 |
| Jun 21 | 5.5 | 2.6 | 6.0 | 2.3 |
| Jul 5 | 5.0 | 2.3 | 4.5 | 2.6 |
| Jul 12 | 4.5 | 2.3 | 4.5 | 2.1 |
| Jul 26 | 5.0 | 2.7 | 5.0 | 2.0 |
| Aug 9 | 5.0 | 1.8 | 5.0 | 1.8 |
| Aug 23 | 5.5 | 1.6 | 6.0 | 1.3 |
| Sep 7 | 7.0 | 2.0 | 7.0 | 1.8 |
| | 5.4 | 2.3 | 5.6 | 2.2 |

The water of Wenona Lake was characterized by high clarity and relatively low suspended algal concentrations in 1987. Secchi disc readings ranged from 4.5 to 7.0 m, indicating high water clarity , while chlorophyll a concentrations ranged from 1.3 to 3.4 ug/L, indicating low to moderate densities of algae suspended in the water column. Wenona Lake would be considered to be relatively unenriched in terms of nutrients based on these data.

FIGURE 1: The relationship between Secchi disc and chlorophyll a for Wenona Lake in 1987 and a number of recreational lakes in the Central Region. All data are seasonal averages.




[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Wenona Lake - 1986
[6] North
[7] South

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Wenona Lake (North). Averages based on fewer than 4 points were considered unreliable and were not graphed.

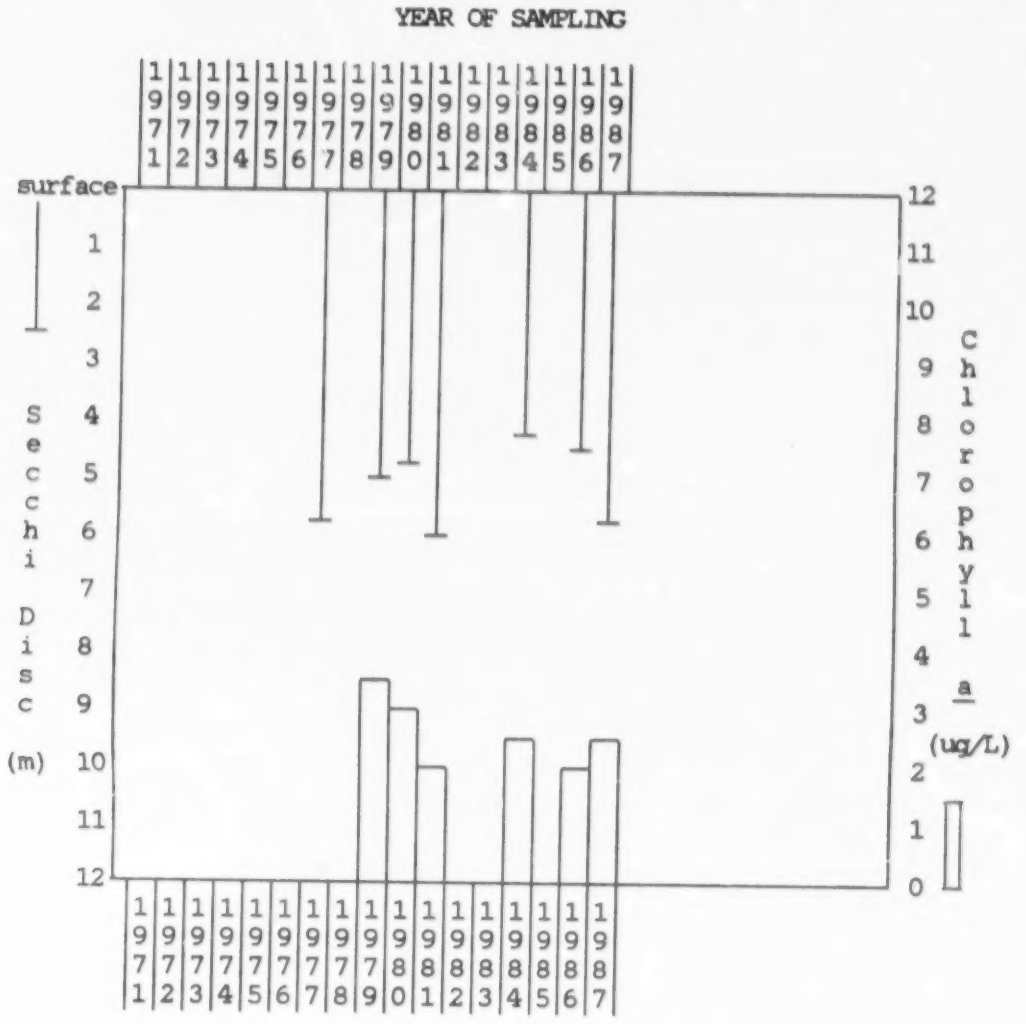
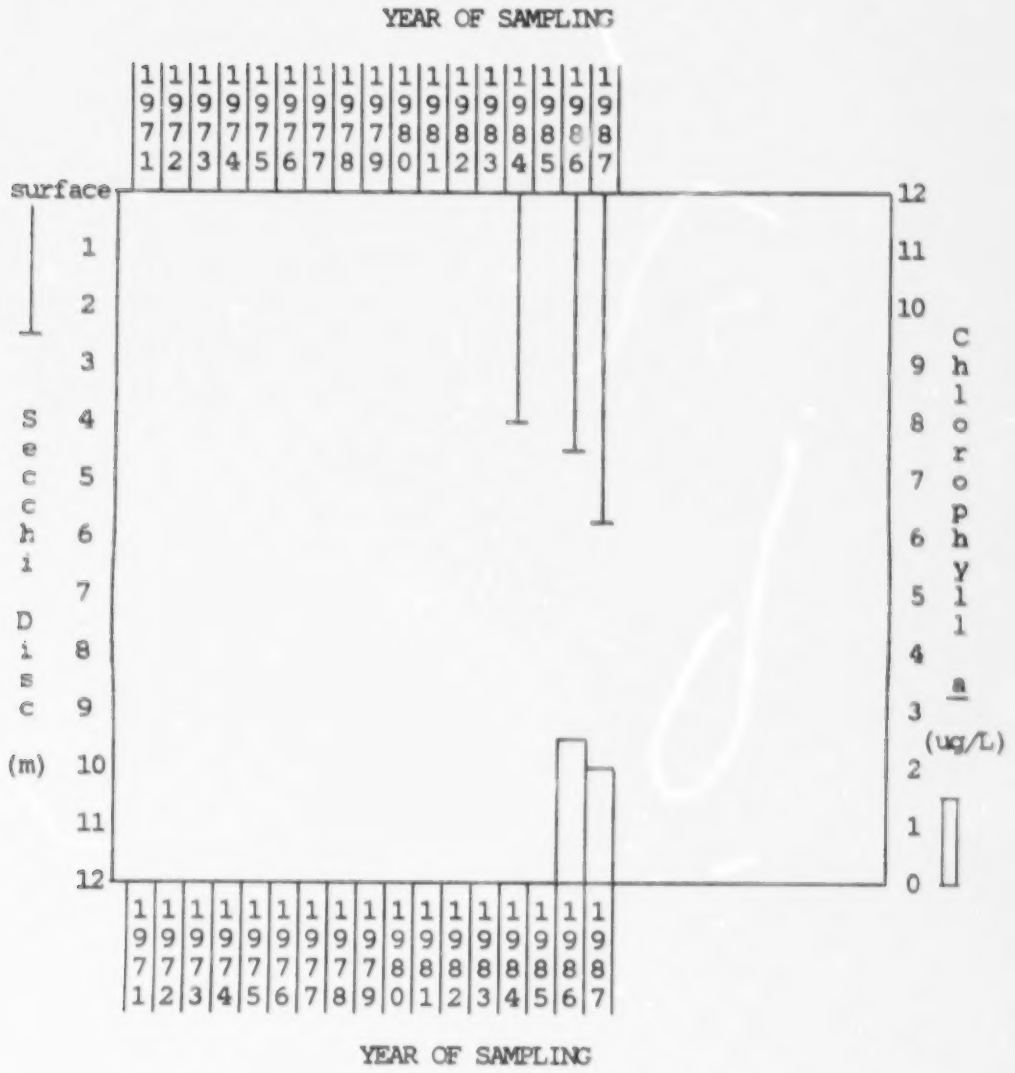


Figure 3 : Historical record of average Secchi disc and chlorophyll a results for Wenona Lake (South). Averages based on fewer than 4 points were considered unreliable and were not graphed.




There are water quality data available for two sampling stations on Wenona Lake. Based on these data, water clarity has been moderate to high and algal densities have been generally moderate throughout the period of record.

**WOOD LAKE**

**OAKLY WARD**
**TOWN OF BRACEBRIDGE**

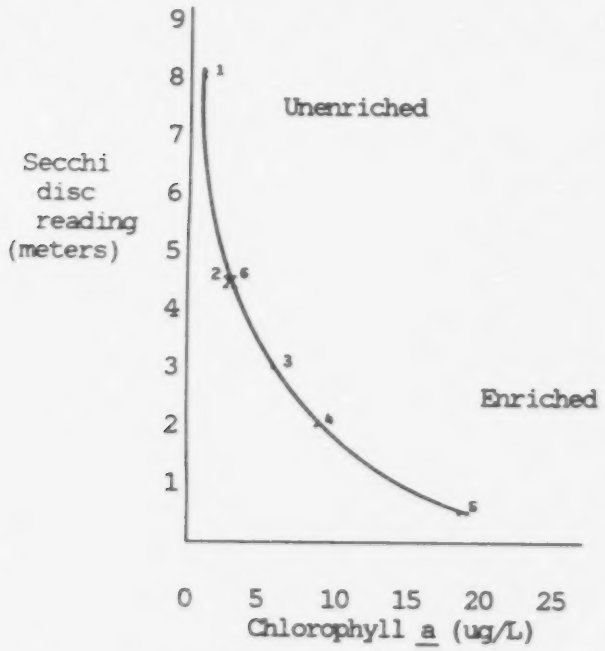
**DISTRICT MUNICIPALITY OF MUSKOKA**

Table 1: Secchi Disc (m) and chlorophyll a (ug/L) data collected from Wood Lake in 1987.

| Station | Centre | | North End | | South | |
|---|---|---|---|---|---|---|
| Date | S.D. | Chl.a | S.D. | Chl.a | S.D. | Chl.a |
| Jun 20 | 5.2 | 4.6 | 5.1 | 2.4 | - | - |
| Jul 5 | 4.5 | 3.3* | - | - | 4.5 | 3.2 |
| Jul 12 | - | - | - | 5.0 | - | 5.4 |
| Jul 28 | - | - | 5.0 | 4.2 | 5.0 | 5.0 |
| Aug 23 | 4.75 | L.A. | 4.5 | L.A. | - | - |
| Sep 6 | 4.5 | 2.4 | 4.5 | 1.7 | - | - |
| | 4.7 | - | 4.8 | 3.3 | - | - |

* Not sampled through 2x the Secchi depth.
L.A. Lab accident -- no sample results.

FIGURE 1: The relationship between Secchi disc and chlrophyll a for Wood Lake in 1987 and a number of recreational lakes in Central Region. All data are seasonal averages.



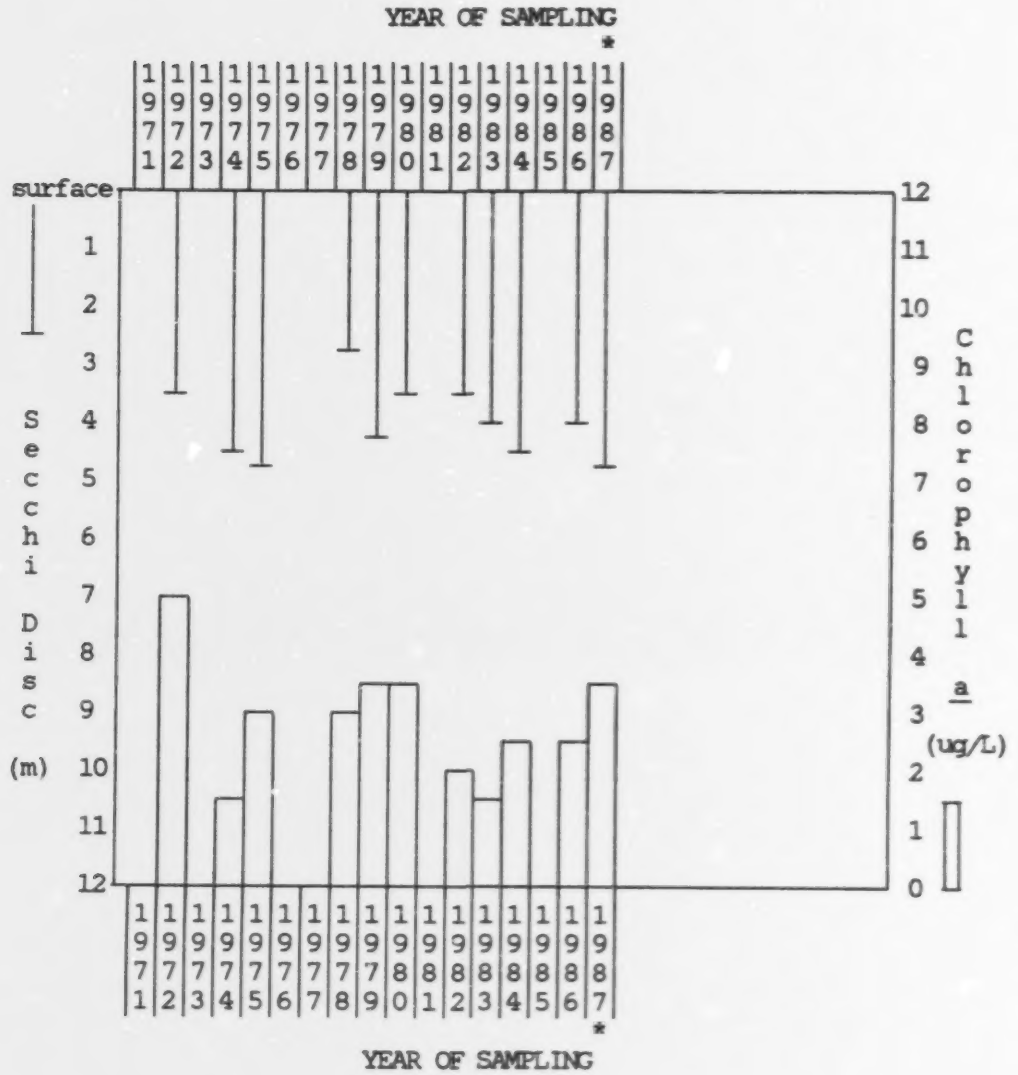

[1] Hall's Lake - 1985
[2] Koshlong Lake - 1985
[3] George's Lake - 1985
[4] Lake St. John - 1985
[5] Lake Scugog - 1985
Williams Point
Wood Lake - 1987
[6] North End
Centre
South - insufficient data

OAKLEY WARD
TOWN OF BRACEBRIDGE

DISTRICT MUNICIPALITY OF
MUSKOKA

In 1987, the water of Wood Lake was moderately clear based on Secchi disc readings ranging from 4.5 to 5.1 m. Suspended algal densities were moderate with chlorophyll a concentrations ranging from 1.7 to 5.4 ug/L. Based on these data, Wood Lake would be considered to be moderately enriched. If sampling continues in 1988 we recommend that sampling frequency be increased to at least six occasions at one or two stations.

Figure 2 : Historical record of average Secchi disc and chlorophyll a results for Wood Lake (Centre). Averages based on fewer than 4 points were considered unreliable and were not graphed.




* Values from North End station.

We now have eleven years of water quality data for Wood Lake. Throughout this period of record, water clarity has been moderate as have the algal densities. The results obtained typify the moderately enriched conditions seen at Wood Lake.